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Railways and A.R.P.

AS public utility undertakings, the British railway companies have embarked upon extensive air-raid precaution schemes in order to secure protection for their staffs against aerial attacks. Instruction in air raid precaution has been given to railway men, and instructional trains have been constructed, equipped with decontamination chambers. Certain of these trains, which will form useful mobile emergency units, have already been illustrated in our columns. New emergency breakdown trains are also being built, equipped with large travelling cranes of the latest pattern, to augment the extensive equipment which the railway companies already possess. Locomotives of non-standard types which are serviceable but which, under modern standardisation schemes, would otherwise have been scrapped, are being preserved to ensure an adequate supply of engines being available to meet the requirements of an emergency. Steps are also being taken to arrange the conversion of vehicles for use as ambulance trains, and the problem of wagon supplies to meet traffic conditions of a rapidly fluctuating character, as well as the diversion of traffic to other routes, is being made the subject of further special investigation; there are approximately one million and a quarter railway wagons and vans in service.

Black-Outs and Railway Lighting

In co-operation with the Government Departments, the British railway companies are preparing their stations, offices, docks, hotels, trains, and other premises for the necessary black-out of lighting which would be required in a state of emergency, and in the case of the experimental black-outs which are taking place the railway companies concerned are co-operating in every way possible. Much experimental work has been undertaken in the determination of suitable lighting standards for emergency conditions in railway yards and at passenger stations in order to ascertain the most effective methods, and the hooding of electric signal lights and provision of other precautionary lighting equipment has been carried out, as well as measures taken to obscure the glare from locomotive fireboxes. The last-named is of particular importance, as anyone with experience of night flying realises with what comparative ease a main railway line may be recognised by the distinctive passage of the firebox door glare along the track. Indeed, it is nearly thirty years since Mr. Claude Graham-White demonstrated the possibilities of direction finding by locomotive light on his memorable night flight between London and Manchester.

* * * *

The Week's Traffics

Compared with the 29th week of 1938, the total traffics of the four main-line railway companies show an increase of £66,000, and this follows an advance of £221,000 in the 28th week. The aggregate receipts to date are £88,044,000, an increase of £982,000 over the corresponding period of last year.

	29th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	– 98,000	+ 83,000	+ 25,000	+ 15,000	+ 298,000	+0·85
L.N.E.R. ..	– 16,000	+ 53,000	+ 23,000	+ 60,000	+ 206,000	+0·85
G.W.R. ..	– 39,000	+ 42,000	+ 3,000	+ 15,000	+ 419,000	+2·87
S.R.	– 31,000	+ 6,500	+ 500	– 24,000	+ 59,000	+0·50

London Transport receipts for the week are £583,900, an increase of £15,900 over the corresponding week last year.

* * * *

Northern Ireland Railways in 1938

Results for 1938 of railways wholly or partly in Northern Ireland were mostly inferior to those of 1937, as shown by the Ministry of Commerce figures. On the railways wholly in Northern Ireland—the Belfast & County Down, Bessbrook & Newry, Carrickfergus Harbour Junction, Clogher Valley, and Northern Counties (L.M.S.R.)—the net revenue available for appropriation was £12,549, against £20,455 in 1937. Railway working of these companies together showed a loss of £31,179 in 1938, against £17,156 in 1937, but profits from the hotels departments of the County Down and the Northern Counties reduced this loss to £20,538, and the total net income was £11,642 against £18,599. Passenger train receipts fell from £367,299 to £361,775 and goods train receipts from £182,788 to £163,493. Railways partly in Northern Ireland include the County Donegal; Dundalk, Newry & Greenore; Great Northern; Londonderry & Lough Swilly; Sligo, Leitrim & Northern Counties; and Strabane & Letterkenny. They secured a total net income in 1938 of £67,764, compared with £136,805 in 1937. From railway working the total net receipts were £14,000 (against £83,392). On the Great Northern the profit on railway working fell from £98,272 to £29,536, but on the County Donegal it rose from £5,519 to £9,139, the other railways showing losses. Road transport profits of the Great Northern in Eire rose from £3,111 to £9,694, but its hotels net receipts fell from £4,382 to £2,578.

Nord-Belge Lines

Financial results in 1938 of operating the Nord-Belge lines of 170 km. were less satisfactory than in 1937 notwithstanding the increase of tariffs put in force on January 1, 1938. Uncertainty as to the international situation and cost-of-living increments to the staff were among the causes of the set-back. Goods receipts were down 13·2 per cent. but passenger receipts only 2·54 per cent. Working expenses increased 1·83 per cent., although fuel costs were cut down 17·3 per cent., notwithstanding higher prices. Some operating figures follow:—

	1937	1938
Passengers	15,533,366	14,870,885
Goods, tons	20,298,175	17,085,970
Ton-kilometres	498,492,910	352,412,245
Train-kilometres	3,701,321	3,352,933
Operating ratio, per cent.	77·19	90·06
	Belgian Francs	Belgian Francs
Passenger receipts	47,016,668	45,822,539
Petite vitesse receipts	139,021,941	120,673,313
Gross receipts	199,052,503	173,714,042
Expenses	153,642,834	156,461,046
Net receipts	45,409,669	17,252,996

After making provision for various charges the deficit on the year's operations amounts to fr.4,131,787.

* * * *

Trinidad Government Railway

Passenger traffic on the Trinidad Government Railway increased by 23 per cent. in numbers and 20 per cent. in receipts in the year 1938 as compared with 1937, but strikes and unfavourable weather caused a drop of 76,000 tons in canes, sugar, molasses, and estate supplies. Wage increases and higher cost of materials sent up operating expenses. After allowing for "other charges," including a non-recurrent item of $231,412 for purchase of unallocated stores, there was a loss in 1938 of $246,919. The Trinidad dollar is equivalent to the U.S.A. dollar:—

	1937	1938
Miles open (4 ft. 8½ in.)	118	118
Passengers	1,737,006	2,141,123
Goods traffic, tons	581,000	502,150
Train-miles	445,731	471,803
Operating ratio, per cent.	875·25	93·61
	$	$
Passenger receipts	184,659	223,895
Goods receipts	607,308	553,155
Gross earnings	856,938	850,025
Operating expenses	747,759	795,756
Net earnings	109,179	54,269

Railway bus and lorry services produced receipts of $43,176, but expenditure on wages and repairs amounted to $46,628.

* * * *

New Transport Authority in Tasmania

In our personal columns this week we announce the appointment of a new form of transport authority in accordance with the Tasmanian Transport Act of 1938. This authority, known as the Transport Commission, as well as taking over all the duties of the former Commissioner for Railways, has assumed complete control of all transport in the State except inland and coastal shipping and municipal passenger transport. Among its functions are the control of registration of motor vehicles, licensing of drivers, licensing and control of commercial road transport, and the determination of road policy, all of which were previously in the hands of separate authorities. Incidentally, the Act has also brought all ancillary vehicles, except those used for agriculture, within the scope of licensing. The commission has a limited control over commercial aircraft operations in the State. Outside experience has been introduced into the island by the appointment of the Commissioner and Secretary, both of whom were formerly with the Road Transport & Tramways Department in New South Wales, but railways are represented on the commission by a former Commissioner for Railways, and their management remains in the competent hands of former Tasmanian railway officers.

* * * *

At the Belgian Frontier

This year the Belgian Government is doing everything in its power to attract even larger numbers of foreign visitors to that country and, among other things, the Customs service has not been overlooked. In a recent circular the Minister for Finance gave prominence to the importance of Customs officials, whose duties generally make them the first to come into contact with visitors arriving from abroad, carrying out their work with the maximum possible tact, politeness, courtesy, and speed. These officials have been instructed to refrain from excessive zeal while carrying out their duties of discovering articles that should not be imported into the country, and also to use their judgment, as in the experience of the Belgian authorities it is rare that deliberate fraud is intended by foreign visitors. The local authorities, the circular adds, will see that the whole matter is carried out intelligently and will also pay special attention to ensuring that their officials are careful and clean in their attire, so that they have both irreproachable behaviour and appearance.

* * * *

The Santander-Mediterranean Railway

The new policy of the Spanish Government towards transport was referred to by Mr. David McA. Eccles at the meeting, on July 17, of the Anglo-Spanish Construction Company. Before the civil war there was much wasteful and bitter competition between the big companies and the smaller lines. Now he believed the Government intended to deal objectively with the whole question and put public interest in the first place. It had a programme in hand for rehabilitating the transport system of the country, including the provision of new rolling stock. On the Spanish railways as a whole, at least 1,500 bridges, 1,000 locomotives, and 10,000 to 12,000 wagons were destroyed during the war, and miles of track torn up. All these had to be repaired or replaced. His company's undertaking, the Santander-Mediterranean Railway, ought, he considered, to be completed to Santander, in the interest of Spanish economy. British exports to Spain had almost disappeared and imports had been nearly halved, but, Mr. Eccles said, the British business community was ready to co-operate in the recovery; the initiative, however, is now with Spain. It is to be hoped that the response will not be long in coming.

* * * *

New York to Chicago

Few long-distance train services in the world can claim to have undergone such a revolution in speed in so short a time as those operating between New York and Chicago. Save for a brief experiment with 18-hr. timings, which was brought to an end in consequence of a serious accident, the Twentieth Century Limited and Broadway Limited, crack flyers of the New York Central and Pennsylvania Companies respectively, worked for many years on a 20-hr. schedule, up to 1932, when the first permanent cut in time to 18 hr. was made. Today these two trains have come down to 16 hr.; the eastbound N.Y.C. Commodore Vanderbilt and Pennsylvania General are 17-hr. trains; the corresponding westbound services take 17 hr. 10 min.; twelve other expresses are booked in 18 to 18¾ hr. (making together twenty daily trains with an average time of 17 hr. 40 min.); while the combined

average of 30 daily services by the two routes works out at 18 hr. 20 min. The New York Central has the advantage of gradients, with its "water level" route, but the disadvantage of distance; its 958 miles of length requires the Twentieth Century to average 59·9 m.p.h. throughout, including stops, and the whole of its ten best trains to average 54·4 m.p.h. overall. The Pennsylvania, with 905 miles to travel, has the difficult grades and curves of the Alleghenies, with a 2,194 ft. summit level at Gallitzin, to take in its stride, notwithstanding which the Broadway Limited averages 56·6 m.p.h. from end-to-end, and the ten best Pennsylvania trains 51·1 m.p.h. In view of the weight of the trains concerned, these are remarkable achievements.

* * * *

Speed and Locomotive Power

In our April 14 issue we gave a description of the new and powerful 3-cylinder 4-6-0 locomotives introduced for the mail service of the Great Southern Railways of Ireland between Dublin and Cork, and the immediate outcome of their introduction has been an acceleration of 22 min. in the time of the southbound mail, and 15 min. in the reverse direction. The southbound overall time of 3 hr. 33 min. for the 165·3 miles of difficult grades includes six stops occupying in all 18 min. The smartness of the running so entailed is seen by the succession of scheduled start-to-stop speeds over short distances from Kildare onwards, the subsequent stages of 20·9, 15·7, 19·9, 20·4, and 37·6 miles being booked respectively at 54·5, 49·6, 51·9, 53·2, and 56·4 m.p.h., as far as Mallow. The last-named, from Limerick Junction to Mallow, is now the fastest scheduled run on Great Southern metals, though the 23 min. allowed for the 20·4 miles from Thurles to Limerick Junction probably entails faster running, as it includes setting back into the platform at the latter station. Not only has it been possible thus to accelerate the service, as a result of introducing the new engines, but also to dispense with the double-heading which has been frequently necessary to enable the previous 4-6-0 engines to tackle the substantial loads of these trains. Another good run is made by the 7.45 a.m. from Cork to Dublin, allowed 97 min. for the 86·5 miles from Thurles to Dublin (53·5 m.p.h.); this is the longest non-stop run on the Great Southern.

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Signal Gantries

Claims have been made that the large signal gantry near the south end of Rugby station, L.M.S.R., which has recently been dismantled owing to the substitution of light signalling, as mentioned in our issue of June 23, was with its 44 semaphore arms the largest in the country. Although standards of measurement for comparing sizes of signal gantries have never been laid down, the claim to first place of the gantry at the west end of Newcastle Central station, L.N.E.R., which displays no fewer than 57 semaphore arms, could hardly be disputed. Further, whereas one half of the signals on the Rugby gantry repeated the movements of signals above them, each of the signals on the Newcastle gantry is independently operated, though 24 of the latter are "draw-ahead" arms, which in accordance with the practice of the late North Eastern Railway can be pulled off independently for draw-ahead purposes, but must also be pulled off when the home signals above them are actuated. However spectacular these vast assemblages of signals may be, few of those concerned with the operation of trains, and least of all the drivers, will regret their disappearance. Unless a train is approaching such a gantry at a low rate of speed, the difficulty of picking the correct arm out of such a maze of signals of equal height, as in the Newcastle example, must be considerable in the few moments available, and the more so at night, or if any part of the gantry is obscured by drifting steam. However, the west end gantry at Newcastle Central is also scheduled for replacement in the scheme of electric signalling through that station that has now been sanctioned, and its demolition will bring to an end the most remarkable example of its species.

* * * *

Alloy Steels for Locomotives

The disadvantages associated with the use of alloy steel in locomotive construction show themselves in the machining processes where the speeds and feeds may have to be reduced by some 20 per cent. as in the case of nickel-chrome-molybdenum steel, due to the higher Brinell hardness of the steel in the heat-treated condition. Also in the gas cutting of frame plates the heat-affected zone adjacent to the gas-cut edge presents difficulties due to the tendency to crack if proper control and supervision are not exercised. The same conditions apply to the welding of this class of steel, and this hardened zone reduces the speeds which can normally be used in dealing with various surfaces of mild steel frame plates by this method. These and similar points were dealt with by Mr. A. H. C. Page in a paper read by him before the Institution of Locomotive Engineers on the "Heat Treatment of Metals in connection with Locomotive and Carriage and Wagon Building." He stated that the use of alloy steels introduces no difficulties in connection with forging and heat treatment, but, owing to the narrower working temperature limits, more exact control of these operations is required than for carbon steel details. It is also essential that the furnaces should be properly balanced to give only a minimum variation in temperatures from end to end. This applies to all heat treatment control but more especially so in the case of alloy steels. In spite of the use of such materials the bulk of the steel at present used in forgings for locomotive construction is of the carbon steel variety.

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A Hundred Years of Cuban Railways

Among the welter of material on railway centenaries published within recent years, it is strange that nothing has appeared about the hundred years of railways in Cuba. In October, 1834, Ferdinand VII of Spain authorised the Spanish Development Board to float in England a loan equivalent to $2,000,000 for the construction of a railway from Havana to Guines, and the first 45 miles from Havana to Befucal was opened on November 19, 1837, eleven years before the establishment of railways in the mother country. Exactly one year later the remainder of the line was opened to traffic. On January 11, 1842, the line was sold by public auction and one of the conditions of the sale was that three specified branch lines should be built; the purchaser was the Cia. de Caminos de Hierro de La Havana. In 1889 the Havana Railway combined with the Havana Bay Railway, which had built railways in the Havana-Matanzas district, and the Bank of Commerce & Regla Warehouses to form the Bank of Commerce, United Railways of Havana & Regla Warehouses. A connecting line between the two railway systems, from Cienaga to Regla, was opened on April 1, 1890. In 1898 the Bank of Commerce withdrew from the combine, and the company was reorganised as an English-controlled concern under the title of the United Railways of the Havana & Regla Warehouses Limited, and since that time has acquired various other railways. The route mileage now in operation is upwards of 1,300, all in west and central Cuba.

1939 Review of Railway Charges

THE judgment of the Railway Rates Tribunal in connection with its recent review of the standard and exceptional charges of the four main-line railway companies has now been published, and generally follows the lines which had been expected. The tribunal states that the railway traffic gross receipts of the four amalgamated companies, which in 1936 and 1937 were greater than in the preceding year by £5,900,000 and £7,200,000 respectively, continued to expand at the rate of about £100,000 for the first ten weeks of 1938, but thereafter a serious decline set in which averaged £130,000 a week for the next eight weeks, £200,000 a week for the next twenty-one weeks, and £215,000 for the last thirteen weeks of the year. The decrease was almost entirely in goods train traffic which, for the first ten weeks showed an improvement of nearly £750,000, but at the end of the year a net decrease of £6,700,000. Passenger train traffic improved to the end of the eighteenth week, decreased by nearly £500,000 between May and September, and remained at about the 1937 level for the last quarter of the year. The net decrease for the year was £300,000, making the total decrease in all traffics no less than £7,000,000 or 4·35 per cent. The fall in goods train traffic receipts was attributable in different degrees to a variety of causes, including a sharp recession in trade, the difficult international situation which adversely affected trade, the further diversion of certain types of merchandise to other forms of transport, coupled with reductions of rates for vulnerable traffic in order to retain it to railway, and the working off by traders of existing stocks which were obtained during 1937, in the expectation that when they desired to replenish them, prices would have fallen.

Concurrently, however, railway working expenses were £1,651,721 greater in 1938 than in 1937 and the result of the year's working after bringing into account revenue from all sources was that the net revenues of the four companies were £8,918,003 less than in 1937. The standard revenues of the companies, with the allowances granted in respect of additional capital totalled £51,359,095, and, as their average net revenues for 1936-1938 amounted to £34,205,751, there was a deficiency of £17,153,344. The tribunal in its 1937 judgment drew attention to an alternative method adopted by the railway companies of dealing with the estimated rates and rate relief recoverable for the period April, 1931, to December, 1935, and if the net revenue for 1938 were adjusted accordingly the deficiency would be £13,855,467. As by either method a substantial deficiency is disclosed, it is unnecessary to determine which method is correct. The tribunal accordingly finds that the average annual net revenue obtained by each of the companies during the period on the experience of which the review was based, namely, the years 1936 to 1938, was less than its standard revenue plus the allowances which had been granted to remunerate additional capital raised or provided in respect of expenditure on capital account incurred since January 1, 1928, the date upon which the standard charges became operative.

In these circumstances the tribunal had to consider whether this was due to lack of efficiency or economy in management, but it remarks that no such suggestion was made by any party appearing at the review. After considering the review given by Sir William Wood, Vice President of the L.M.S.R., of the railway developments since 1927 and the conditions under which railway activities have been carried on, and examining relative documents and statistics, the tribunal expresses the opinion that in the case of each of the companies the deficiency was not due to either of these causes. It also finds that the deficiency is likely to continue in the case of each company. The tribunal therefore had to consider whether a modification in all or any of the standard charges and a corresponding general modification of the exceptional charges would enable each company to earn its standard revenue or bring its net revenue appreciably nearer the standard. The companies gave evidence that no such modifications would improve their financial position or bring their net revenues nearer the standard, and consequently the tribunal did not order any alterations in the present level of the charges. Finally, it points out that, while the companies expended the sum of £8,828,631 on capital account during 1938, no additional capital was raised or provided in respect of such capital expenditure, and, therefore, no claims for additional allowances under this head were made.

* * * *

Belgian National Railways in 1938

RESULTS of working the system of the Belgian National Railways Company during the year 1938 were affected by the renewal of the depression in trade which was common to all countries, and the final deficit for the year after meeting all expenses and financial charges was fr.283,489,158, making a total debit to profit and loss of fr.680,079,849. The Government has authorised the company to adopt as from January 1, 1939, a comprehensive remodelling of its tariff structure which is intended to produce an increase of some fr.90 millions in receipts, and the company has a new scheme of economies in hand, but even if the volume of traffic remains the same as in 1938, which is regarded as too optimistic a forecast in view of present conditions, the deficit for 1939 is estimated to be fr.130 millions. Two main reasons for the poor results are given in the report:—first, the burdens imposed on the company, and secondly, the want of sufficient co-ordination between the different means of transport. It is claimed that the State itself should be responsible for pensions of former State railway employees and for compulsory tariff reductions. Should these claims be granted by the State, the company's expenses might well show a reduction of fr.280 millions per annum. Passenger competition by road has been satisfactorily regulated, but the provision of facilities for goods transport by rail, road, and water is far greater than the country needs even in times of prosperity. As a result of recent conferences in the principal cities with traders and the different transport interests, M. Rulot, the General Manager of the railway company has advocated the formation in the Ministry of Transport of a central co-ordination committee representative of transport and trading interests and having executive powers over facilities and tariffs. The Government should also be represented on this committee, which should have a magistrate as chairman.

Traffic receipts in 1938 showed a decrease of fr.147,240,057 or 5·5 per cent. in comparison with 1937, and gross receipts from all sources were lower by fr.146,373,448 or 5·4 per cent. Although the number of passengers decreased by 3·8 per cent., passenger revenue went up from fr.820·9 millions to fr.824·1 millions because of the 5 per cent. general increase in tariffs which came into force on March 20, 1937. Passengers carried at ordinary fares were 19 per cent. of the total. First class passengers were 0·2 per cent., and first class receipts 1·7 per cent., of the total; the corresponding figures for second class were 6·5 per cent. and 17·3 per cent.; and for third class 93·3 per cent. and 81 per cent. Luggage and postal parcel receipts improved from fr.16·8 millions to fr.17·9 millions. Goods traffic receipts, on the other hand, fell from fr.1792·3 millions to fr.1640·8 millions,

and goods tonnage by 13·8 per cent. Tariffs were increased on January 20, 1938. The accompanying table gives some operating figures:—

	1937	1938
Length of line open, km. ..	4,844	4,839
Passengers (millions)	202·4	194·8
Goods, *tonnes* (millions) ..	73·1	63·0
Train-kilometres (millions) ..	86·3	84·2
Operating ratio, per cent. ..	98·63	106·78
	Francs	Francs
Total traffic receipts	2,630,009,363	2,482,769,306
Gross receipts	2,688,789,683	2,542,416,235
Expenditure	2,651,975,449	2,714,950,352
Net receipts	36,814,234	Dr. 172,534,117
Deficit after meeting financial charges	28,021,408	283,489,158

Although the number of staff was reduced from 85,124 at the end of 1937 to 75,919 at the end of 1938, payments to the staff increased from fr.618·5 millions in 1937 to fr.1,673·7 millions in 1938. Expenditure on materials rose from fr.486·6 millions to fr.532·6 millions. A large part of the increase in staff payments was caused by the higher cost of living allowance. Passenger train-kilometres in 1938 were 62·4 millions, against 61·4 millions in 1937. Several new services were introduced, including direct daily trains between Ostend and Berlin, and between The Hague, Brussels, Basle, Milan, and Rome, and four new expresses between Brussels and Eindhoven. Railcar services were also increased, representing 3,483,885 car-kilometres, against 3,282,742. Goods train-kilometres were reduced from 24·9 millions in 1937 to 21·8 millions in 1938. Numerous accelerations were effected in goods train services both internal and international, and the number of container consignments rose from 52,258 to 53,705. Simplified methods of working have been introduced on certain secondary lines and their use is being extended. Co-ordinated arrangements with the light railways company continue to be successfully pursued. The reduction in the length of line open is due mainly to the closing of the Blankenberghe—Zeebrugge section.

* * * *

The Orient Express

ONE of the most famous and certainly the oldest established of the great international trains on the European Continent is the Orient Express, and it is not too much to say that this train has played a preponderating part in the development of European international services. It was established by the International Sleeping Car Company and ran for the first time, between Paris (Est) and Vienna, on June 5, 1883. From the beginning it was composed of bogie sleeping cars, vans belonging to the company, and a six-wheel dining car; the last named was soon replaced by bogie stock. Before the connection of the Serbian and Bulgarian railways with the main European system, this train ran to Bucharest and on to Varna on the Black Sea, enabling the last stage of the journey to Constantinople (now Istanbul) to be made by boat. With the completion of railway links enabling a through train to be established between Paris and Istanbul, this train connected Paris, Vienna, and Budapest with all the Balkan capitals by reason of the fact that it was divided at Budapest, one portion proceeding on the original route and the other *via* Belgrade, Nisch, and Sofia, to Istanbul. Not until the beginning of the present century was a similar train introduced from Berlin; but on June 1, 1901, under the name of *Balkanzug*, a through train was inaugurated from Berlin to Budapest, the coaches of which were linked up with those of the main train from Paris as well as a through coach from Ostend (introduced on June 1, 1894) which ran *via* Brussels, Cologne, and Frankfort, and was attached at Wels.

The European war naturally resulted in the suspension of the Orient Express, and during the war period Germany established its famous Berlin—Istanbul through train in white livery. As soon as the Armistice was signed the Orient Express was re-established as a military train running three times a week between Paris and Vienna, and on to Warsaw, but passing to the south of then German territory, following the route of the present Arlberg-Orient Express through Paris to Basle and Linz, and then through Vienna and Oderberg. At first it stopped in Vienna at both the West and Nord stations but the call at the former was abandoned in 1920.

In due course the original Orient Express resumed its original route, but meanwhile the Simplon-Orient Express had been established with the object of providing a political link between Western Europe and the Balkans without touching Central European territory—to this end it ran from Calais *via* Paris, Lausanne, Milan, Venice, Trieste, and Zagreb to Vinkovci. At the last-named point it divided and one portion proceeded to Bucharest; the other portion went *via* Belgrade and Nisch to Sofia and Istanbul on the old Orient route, while a Greek portion, established in July, 1920, was detached at Nisch and continued its journey to Athens *via* Salonica. The other post-war train to the Orient is the Arlberg-Orient Express which was begun in 1924 as a sleeping-car train between Paris and Vienna running through Basle, Sargans, and Salzburg, and joining the original Orient Express route at Wels. It soon had a through coach for Bucharest and its timing was brought into line with those of the other main trains to the East. The complete ramifications of these Orient Expresses make a fascinating study, and for the benefit of those who desire to follow them in detail Professor Lionel Wiener described them at length in an article which he contributed to the monthly bulletin of the International Railway Congress Association, and which was published in the July, 1934, English edition.

* * * *

The Tortuga Head-on Collision

CONSIDERABLE interest was aroused by our description of and editorial comments on the disastrous head-on collision which occurred on the Southern Pacific Railroad at Tortuga, California, on September 20, 1938,* when the westbound Argonaut express was turned into a passing loop and collided at about 40 m.p.h. with the waiting eastbound Californian express. The accident was caused by the head brakeman of the latter train in a moment of mental aberration reversing the passing loop points immediately in front of the oncoming train, and realising his error too late to rectify it. Requests have been made to us for a more detailed explanation of the method of working such single lines as that upon which the accident occurred, and we approached Mr. A. D. McDonald, President of the Southern Pacific, who kindly provided us with the information which has been embodied in the article on page 131 of this issue.

The traffic is regulated by train despatchers, whose business it is to issue orders which must take into consideration the weight of each train, whether it is running late, which train can best recover lost time, and other relevant factors. In the case of the Tortuga accident the colliding train stood to be favoured, hence both trains received a simple train order directing that the standing train should take the loop line, or siding as it is called. When a train is directed to hold the main track and arrives before the opposing train, it is considered good practice, Mr. McDonald writes, for the brakeman of the

* The Railway Gazette for January 27, 1939, pages 125 and 150

former to set the switch for the siding, thereby offering protection against collision if for any reason the approaching train should fail to stop. Such practice also, of course, reduces delay to both trains.

Dealing with the question of approach locking of points, on which comment was made in our previous articles, Mr. McDonald says that there are some 8,700 miles of single track, with upwards of 2,500 main line switches, on his system. While he agrees that it would be desirable to provide all these loops with electrical approach-locked switches, the capital cost would be tremendous and delays and complications would result unless they were handled by despatchers through the medium of remote control at great expense. Accidents like the one under discussion are extremely rare, and never before in the history of the Southern Pacific Railroad—and probably not in the entire U.S.A.—has there been one with such disastrous results.

No explanation of the actions of the unfortunate brakeman who turned the one train into the other is entirely satisfactory, but it would appear that he forgot for the moment that his own train was on the siding. Had he reversed the points as soon as his train had come to rest, there would have been time for the approaching express to see the adverse signal indications so produced. What he did was merely to unlock the points, and then, according to rule, he crossed to the other side of the line; on seeing the train approaching at speed, he apparently lost his head and reversed the points under the delusion that by doing so he would avert an accident; whereas he committed the worst blunder it was possible to make. He then threw the points back again under the train. Mr. McDonald, referring to the behaviour of the all-steel rolling stock which figured prominently in the case, tells us that tests are still in progress to determine what, if any, change should be made in structural design. No one can say, he adds, what difference would have resulted had all the cars been of the heavy type and none of lightweight construction, but the stresses set up at the moment of collision were far in excess of anything contemplated when any of the equipment was designed.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Dust Problem in Egypt

Egyptian State Railways,
Cairo (Egypt)
July 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. F. J. Marr, in his article on "Cape to Cairo Overland" which appeared in your number of May 5, 1939, alluded to the trains of the Egyptian State Railways as "by no means the cleanest of the entire journey." Being a railwayman, I feel it my duty to refer to the remark made by Mr. Marr with deep regret. It would have been preferable if he had made allowance for the nature of dust in this country and given credit for the rolling stock run on the Egyptian State Railways. Express trains from Shellal to Cairo convey sleeping and Pullman cars—provided by the International Sleeping Car Company—of the latest type employed on the Continent. Also eight air-conditioned *de luxe* first class carriages are under construction. The railways are continuously experimenting with methods of avoiding the dust inside the carriages, but the nature of the country and the heat in Upper Egypt constitute a great difficulty to be overcome.

The Egyptian State Railways have two stations at Shellal, a high and a low level station, the latter being generally below the water level when the dam regulators are closed to reserve the Nile water in the great reservoir around the famous Philæ Island.

Yours faithfully,
H. BADIR
Assistant Traffic Manager

Morning Trains "to the Provinces"

153, Marsham Court,
Marsham Street, S.W.1
July 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The acceleration of British express train services which was taking place in gradual instalments appears now to have come to a halt and few changes of importance have occurred recently; when they have it has been as often as not a slowing down that has been introduced. It therefore seems to me an opportune moment to ask whether the accelerations that have been introduced have in fact been applied where they were most needed. Although special high-speed locomotives continue to be put into service, the schedules as a whole hardly reveal the improvements that might have been expected—in contrast to the general practice abroad when new streamlined engines are introduced. If therefore it is the case that the railways are satisfied that they are providing sufficient high-speed mileage, I suggest they should apply it more usefully; and as my main example of what I mean, I would mention the virtual impossibility of reaching from London the big northern towns in such time as to allow a reasonable period for business before luncheon and thereby make a one-day journey worth while. Northampton, Leicester, Kettering, Coventry, Birmingham can be reached between 10.15 and 11 a.m., and I submit there is a demand, similar to that satisfied by the early morning services to these towns, for a high-speed service reaching Liverpool, Manchester, Leeds, Bradford, Sheffield, and so on about 11 a.m. An 8 a.m. departure from London would be convenient to most travellers. Then, if it is true that present high-speed mileage is to remain constant for the present, the schedules of the evening trains, such as the 6 p.m. and 6.5 to Manchester and Liverpool, and the 7.10 to Leeds could be eased out by 15 minutes or so. Time saved in the evening is obviously of less value than that saved during the working day.

Another excellent example of my point is the retention of the 12 noon arrival at Euston of the 8.15 a.m. from Liverpool when the 5.25 p.m. (and the 4.5 p.m.) have had their timings severely cut. My view is that the 8.15 a.m. should have been the first—not the last—to receive attention.

The German high-speed services demonstrate very well the principle of the fast early morning service, and it would be instructive to learn if your readers think similar facilities are warranted here.

Yours faithfully,
G. T. S. DE CLERMOND

NEW INFORMATION CENTRES IN DENMARK AND SWEDEN.—The recent opening by the Travel and Industrial Development Association of a British information bureau in Amsterdam is to be followed by a similar extension of activities in Scandinavia. Two new "Come to Britain" offices are to be inaugurated in the autumn—one in Stockholm and the other in Copenhagen. As in the case of Amsterdam, both offices will be situated in principal thoroughfares, so as to give Britain the best possible "shop window." Mr. C. C. Parrott has been appointed to take charge of the Stockholm office and Mr. Otto Maegaard, Secretary of the Danish-British Association, has been appointed to Copenhagen. This extension of the Travel Association's overseas representation has been made possible by increased financial support from the Government.

PUBLICATIONS RECEIVED

Rambles and Walking in South Devon. By Hugh E. Page. G.W.R., Paddington station. 7¼ in. × 4¾ in. 144 pp. Price 6d. net.—This latest addition to the series of G.W.R. " Books for Ramblers," by Mr. Page, described in detail over 325 miles of rambles and walking tours round the coast of South Devon, through the valleys of the Dart, Teign and other rivers, and on Dartmoor. The present edition is an enlargement to 20 rambles of a previous book of 12 published several years ago. The original walks have been thoroughly revised and improved and in some cases extended, so that they can be connected up for walking tours, as in most of the other books in the series. An easy-to-follow sketch map accompanies each of the rambles and the walks are so arranged as to make it possible to combine them in a tour over the whole area, a diagram map of which is included at the end of the book, together with a complete map of South Devon. Full-page illustrations, showing some of the well-known and less-known beauty spots, give the book an added interest.

Elsners Taschenjahrbuch für den Werkstätten und Betriebsmaschinendienst bei der Deutschen Reichsbahn, 1939. (Elsners Pocket Year Book for the Workshops and Locomotive Operating Service of the German State Railway, 1939). Berlin : Otto Elsner Verlagsgesellschaft. 4¼ in. by 6¾ in. by 1 in. Illustrated. 587 pp. Price RM.3.50. —This book is extraordinarily good value for money and bears every evidence that it has indeed been compiled by " experts in the workshop, locomotive operation, and administration services " of the German State Railway. It has, moreover, official blessing in the form of a foreword by Dr.-Ing. Kühne, of the German Ministry of Transport, who refers to the new problems of operation and maintenance arising from the addition of the Austrian and Sudetenland railways to the Reichsbahn, and suggests that the new edition of this pocket book will assist materially in bringing about standardisation of methods. The book is intended for all ranks of employees in the operating and maintenance departments, and its particular and most commendable aim is to supply information not readily available from any other source. The bearing of various regulations on the details of practice is explained ; and throughout the treatment of methods and equipment, organisation, and procedure is from the standpoint of the promotion of efficiency and economy.

In the first part of the book, which deals with the latest developments in the maintenance of vehicles and the repairing of components, the procedure to be followed in the repair of worn locomotive tyres by electric arc welding is described. The second part, on locomotive operation, contains a full treatment of the changes in conditions and operating requirements brought about by the introduction of steel fireboxes, the management and care of high-speed locomotives (speeds above 110 km.p.h., or 68·4 m.p.h.), and sections on Nicolai piston valves, feedwater heaters, Obergethmann bearings, brakes, and other equipment. The remainder of the book is concerned mainly with the financial organisation and matters of accountancy, costing, estimating, wage rates, and so on. There are appendices, several of which will be very useful to readers outside Germany ; and there are full lists of the sections of preceding issues of the yearbook (1936-1938 inclusive) which are still valid. This is a feature which greatly increases the value of the whole series.

London Craftsman. By Marjorie Quennell. London Passenger Transport Board, 55, Broadway, Westminster, S.W.1. 6¾ in. × 4¼ in. 66 pp. Illustrated. Price 6d. net.—In this latest addition to London Transport's popular " London-in-your-Pocket " series, Mrs. Quennell, part author of " A History of Everyday Things," takes the reader on a novel tour of London's museums. She shows where to see the old trade relics from which the present great City Companies have sprung, refreshes the mind on half-forgotten memories, and gives us new and interesting facts associated with the " centre of a thousand trades." Who is aware, for instance, that Bethnal Green was once the hub of the silk industry ? That there were large ironworks in Ashdown Forest in 1539 ? That pottery remained primitive in England until the late 17th century ? Ten of the leading museums of the Metropolis are covered in this way by Mrs. Quennell. These are the British Museum, London Museum, Science Museum, Guildhall Museum, Geffrye Museum, Horniman Museum, Public Record Office, Bethnal Green Museum, Cuming Museum, and Victoria & Albert Museum. From the practical aspect is detailed information on times of opening, nearest station and price of admission, where this applies. This information also covers other interesting show places such as the Imperial Institute, National Maritime Museum and the Lambeth Palace Library. Mrs. Quennell certainly gives a new zest to museum-going.

New Belgian Holiday Brochure.—From the London office of the Belgian Railways & Marine comes a new brochure devoted to Belgian coastal resorts and cities of art. The many watering-places fringing the North Sea from La Panne to Le Zoute are described ; they range from fashionable Ostend and Blankenberghe to smaller but equally delightful resorts like Heyst and Wenduyne. The art centres mentioned include Brussels, Bruges, Liége—where the " Water Exhibition " is being held this year—Antwerp, and Ghent. In the centre of the guide is a supplement giving train service and fares from London to Belgian destinations, and information on hotels. Attention is directed to the new Tourist Voucher, costing about 45s., which entitles the holder to various advantages and reductions. Fuller details of this concession are obtainable from all travel agencies, railway companies, and agents of the Belgian National Railway Company.

Pressure Type Air Filters for Compressed Air Pipe Lines.—This new folder, from the Visco Engineering Co. Ltd., describes the firm's pressure type air filters, which are designed to provide an effective means of removing from the air impurities—dirt, rust, and oil—which interfere with the satisfactory working of compressed air and pneumatic machinery. The filter consists essentially of a cylinder, of which the lower portion forms a sump and the centre portion contains a filter cell.

Improved Pulling Jack.—Hadfields Limited, of Sheffield, has the sole manufacturing and selling rights of an improved pulling jack invented by a miner, Mr. W. Blair, for the withdrawal of props from any position. The principles of the device are described in a folder we have received from the maker. As supplied with 3 ft. of lashing chain and 15 ft. of pulling chain, the jack weighs 2 qr. 9 lb. All important parts in the device are made of Hadfields best toughened cast or forged steel.

Ironclad Switchgear.—The latest edition of the General Electric Company's catalogue of Ironclad switchgear records an important alteration in this well-known range of equipment in that a new finish matching Silverlac conduit has been adopted as standard. Several new lines have now been added to the Ironclad list, such as all-insulated switch fuses, emergency stop buttons, flame-proof push-buttons, and a larger type of switchfuse transformer. The catalogue comprises chiefly non-automatic switch and fuse gear, together with certain circuit-breakers, contactors, transformers, and general control equipment required for modern electrical installations.

Thermostatic Metals.—Henry Wiggin & Co. Ltd. has recently introduced a new range of thermostatic bimetals under the name of Thermometal. These are intended for the control of electric equipment by inclusion in the relevant circuits, their resistances being such that a selected overload will cause heating and deflection of the bimetal and operation of a safety switch. Wilco-Wiggin resistance Thermometals are made in 12 grades, with resistivities from as low as 5 microhms up to 93 microhms per cu. cm. High and uniform deflection is obtained with the minimum rise in temperature, and the temperature-deflection constants are practically the same throughout the range. The maker, whose address is Thames House, Millbank, London, S.W.1, has issued an informative pamphlet dealing with the metals.

THE SCRAP HEAP

During the coming holiday weeks the British railways are running 17,500 extra cheap excursions, in addition to operating full summer services, and at the same time are coping with Government traffics as well as the movement of men and stores on behalf of the Services.

* * *

Bathing cabins are now being built on the shores of a lake near Heluan, Egypt, which was non-existent a few weeks ago, according to a Reuter's report. People are visiting it to "take the waters," which have valuable mineral properties. The lake, which is about 870 yd. square and 25 ft. deep, was formed when workmen, excavating in connection with the construction of a railway line, uncovered a spring.

* * *

CHILDREN'S RAILWAYS IN THE U.S.S.R.

Eleven children's railways have been built in various cities of the Soviet Union during the last two or three years. Three new ones are now under construction at Magnitogorsk, Rostov-on-Don, and in the Donetz Basin. The first children's railway in the U.S.S.R. was built in 1935 at Tbilisi, the capital of Soviet Georgia, where there are now two, one run by steam and the other by electricity. The railways are correct miniatures of real railways, and are managed and operated entirely by schoolchildren between the ages of 12 and 16; the youngsters drive the engines, and act as guards, signalmen, and stationmasters. Through the medium of play the children are thus learning to become railwaymen. The People's Commissar of Railways, Mr. L. M. Kaganovich, is very greatly interested in these miniature railways. Last year the Soviet Government made a grant of 3,000,000 roubles for the construction and maintenance of children's railways, in addition to sums already allocated by local organisations for the purpose.

* * *

Philippine railways were first officially projected in 1875, when a Royal Decree of that year, dated August 6, determined the legislative basis for such works. The Inspector of Public Works was summoned to form a general plan of a railway system in the island of Luzon. On November 11 this task was undertaken by Don Eduardo Lopez Navarro. The lines to be constructed were classed under two heads: first those of general public utility to be laid down either by the State or by subsidised companies, the concession in this case being given by the Home government; and secondly, those of private interest, for which concessions could be granted by the Governor General. In 1885 the Government solicited tenders for laying the first line of railway, from Manila to Dagupan. The subsidy offered by the Government amounted to about $7,650 a mile, but on three occasions no tender was forthcoming, either from Madrid or in Manila, where it was simultaneously solicited. Subsequently a modified offer was made of a guaranteed annual interest of 8 per cent. on a maximum capital of $4,964,473, and in October, 1886, the contract was taken up by a London firm of contractors which in February, 1888, issued the prospectus of the Manila Railway Co. Ltd.—*From "The Philippine Islands," by John Foreman, 1890.*

* * *

A BROAD-GAUGE RELIC

An interesting reference to broad-gauge coaching stock is made in a letter from a correspondent who relates that, after the final conversion in 1892 of the remaining Great Western main lines from the 7 ft. to the 4 ft. 8½ in. gauge, his father bought a disused first class coach body for £5. It was a short vehicle, with only four compartments, but the width was sufficient to accommodate six passengers aside. Our correspondent's recollection of this coach is that it was beautifully made, only the best qualities of wood having been used in its construction. Later the coach body was sold to a local farmer, who used it as a store hut; but since then it has gone up in the social scale, for at present, though fully sixty years old, it is serving as a bungalow—a tribute to the excellence of Swindon coach-building in those bygone days.

* * *

"WITH HER BUNKERS EMPTY"

"It isn't often a crack passenger train is forced to stop because she runs out of fuel," we read in a cutting from the American *Railroad Magazine*. "But such a thing happened the other day to the Coronation, the L.N.E.R.'s latest streamliner, when making her run of seventy miles an hour from Edinburgh to London. Battling against strong head winds all the way on her recently inaugurated six-hour express service between the two capital cities, the Coronation glided to a standstill at Hitchin, after her last shovelful of coal had been thrown into the roaring fire, and her bunkers were empty. She was unable to proceed as far as her next regular stop, Newcastle, so another engine was sent racing to the stranded flier, was coupled on to her, and towed her on to London, arriving only a few minutes late." To tow the Coronation from Hitchin to King's Cross *via* Newcastle and to arrive "only a few minutes late" must have put all previous records of speed and haulage well in the shade!

* * *

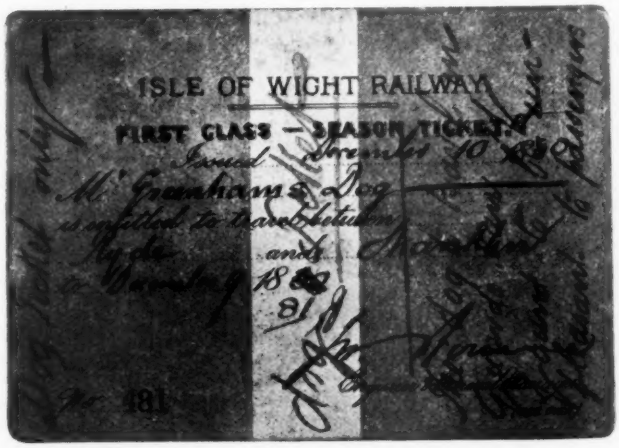
The B.B.C. announces that on Saturday, August 5, in the television programme there will be a demonstration of locomotives by Colonel R. Henry, Vice-Chairman of the Model Railway Club.

* * *

Captain J. R. Bulmer, Senior Captain of the L.M.S.R. fleet, who retires on August 1 after 48 years at sea, began his seafaring career under sail, and joined the Irish Cross-Channel service in 1900. He has had some exciting adventures in his long career, especially during the war. Once his ship was steaming along in a thick fog when he suddenly heard the whistle of another vessel. Both ships immediately altered course and managed to avoid what would have been a collision, but by so narrow a margin that the flagstaff of Captain Bulmer's ship was carried away by one of the other ship's boats. Captain Bulmer considers the introduction of the wireless direction-finder and the echo-sounding machine the most notable improvement from a navigational standpoint which has taken place during his life at sea.

* * *

We are indebted to Mr. E. J. Missenden, Traffic Manager, Southern Railway, for sending us the interesting season ticket we reproduce below. It will be seen that it was issued by the Isle of Wight Railway in 1880, and authorises the conveyance of a dog between Ryde and Shanklin. The ink endorsement reads: "The dog to travel in Guard's van if found to be unpleasant to passengers." We may add that our reproduction is full size.



Dog season ticket issued by the Isle of Wight Railway in 1880

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Road Transport of Grain

Striking evidence of the way in which road transport is depriving the railways of their grain traffic is furnished by the latest figures issued by the National Grain and Elevator Board, which show that a greater proportion of grain is now being carried by road than by rail. During the year 1938, 398,550 tons of grain were conveyed to the port of Quequen, or 73 per cent. of the total tonnage shipped from that port, which is served by the B.A.G.S.R., as against 68.9 per cent. in 1937. Other ports in the southern zone where a notable increase in the tonnage of cereals carried by road transport was registered were Mar del Plata, and Arroyo Pareja, near Bahia Blanca, the total amount transported to the latter port by road being 85,000 tons. A remarkable increase in the road transport of grain is also recorded in the case of the port of Santa Fé, where the amount carried by this means during 1938 was 44 per cent., as compared with only 15 per cent. in 1935. During 1938, 17,945 motor vehicles (lorries and trailers) entered the port loaded with linseed; 16,929 vehicles with maize, and 2,945 vehicles with wheat. On the other hand, in the Rosario zone, the quantity of grain carried by road during 1938 was only 380,000 tons, or 16 per cent. of the total, as compared with 20 per cent. in 1937.

Growth Stimulated by National Roads

The grain board attributes the steady growth of road transport partly to the system of national roads, which is gradually extending over the republic, and partly to the comparatively short distances which have to be traversed in Argentina, where the average distance to the nearest port is between 160 and 200 km., as compared with such countries as Canada. There the average distance from the main producing zones to, say, Fort William or Port Arthur, is about 1,500 km., transport costs being approximately double those entailed by the carriage of Argentine grain. The grain board states that it intends to conduct an inquiry into the increasing use of road vehicles for the carriage of the Argentine crops.

The figures quoted above by a Government department furnish another strong argument in favour of the application of the long-delayed National Transportation Law, to enable the railways to meet such severe and growing competition from the roads on more equal terms than at present.

Rebuilding of Transandine Railway

Work on the reconstruction of the above railway is slowly but steadily proceeding, the section between Mendoza and Cacheuta being practically finished. The running of a provisional train service between these points, which had been contemplated, has been postponed for the present, in view of the small number of tourists travelling over the route at this season of the year. The plans for the reconstruction of the section between Uspullata and Punta de las Vacas are now ready, and arrangements for beginning work between Cacheuta and Uspullata have been completed. It is stated that work will shortly begin on the section between Cacheuta and Km. 55, and it is expected that before the end of the present year work will be in hand on the section between Km. 55 and Uspullata.

El Rápido Express now One-class and Pullman only

An important modification has been introduced into the composition of the Central Argentine El Rápido express between Buenos Aires and Rosario. Hitherto composed of first and second coaches, this train is now made up exclusively of one-class vehicles in addition to the customary Pullman and dining cars. As a result of this innovation, new tariffs have been introduced for the one-class accommodation, the single fare between Buenos Aires and Rosario being reduced to $10.00 instead of the first class rate of $15.00 previously charged; while the return fare between these points is now $16.00, instead of $25.00 as formerly. Passengers with one-class tickets can make the return journey any time within 7 days, with the option of utilising the State Railways diesel service between Buenos Aires and Rosario. The tariff for the Pullman car continues to be the ordinary first class fare, plus the usual supplementary seat charge of $5.00.

UNITED STATES

New P.RR. New York—Chicago All-coach Express

On July 28 the Pennsylvania Railroad will inaugurate a daily all-coach night service in each direction between New York and Chicago. The new trains on this service will be known as the Trail Blazer in each direction, and will be booked to cover the 905 miles in 17 hr. westbound and 17 hr. 25 min. eastbound. Ultra-modern interior car designs and conveniences will be provided, including reclining seats of the individually-adjustable type, moderately-priced meals in specially designed dining cars, an observation lounge with buffet, radio programmes, and freedom from disturbance for ticket checking after lights have been dimmed for the night.

The ordinary return coach fares recently introduced will be payable with no supplement for the special features of these trains, namely, at the rate of 1·7 cents, little more than ¾d., a mile, or $30.9 for the round trip; hitherto the return fare has been $45.38.

During the period of the New York World's Fair, the eastbound Trail Blazer, after a stop at the Pennsylvania terminal in that city, will run on to the World's Fair station, arriving at 9.30 a.m., thus allowing a full day at the Fair. The following are the skeleton schedules of these trains :—

Westbound		Eastbound
—	World's Fair ...	9.30 a.m.
6.25 p.m.	New York	8.55 a.m.
7.57 p.m.	N. Philadelphia ...	7.08 a.m.
10.25 a.m.	Chicago	2.30 p.m.

Initially each train will consist of eight cars, including one of the latest twin dining car sets, which, like the buffet-lounge observation car will be streamlined; to provide flexibility to meet expansion of traffic, the other cars will not be articulated.

Rolling Stock Orders Improve, but still Far below Normal

Orders by the railways of new rolling stock and other materials have risen materially over the depths of last year. In the first half of the present year they placed orders for 150 engines, 135 coaching vehicles, and 9,000 freight cars. This was double the number of locomotives ordered in the first half of 1938, and an increase of 13 per cent. in freight cars and 26 per cent. in coaching stock. But the paucity of the railways' replacement and renewal programme may be gauged by comparing these figures with normal annual replacement figures, which should be at least 1,200 each for locomotives and coaching stock and 75,000 for freight cars.

RHODESIA

Railway Lorry Services Maintained Despite Bogging

With the abnormal rains throughout Southern Rhodesia road travel in February and March became extremely difficult, and the railway road motor services operated under extraordinary conditions. The lorries were constantly bogged or held up at rivers, the trips in some instances taking up to two days for a normal schedule of a few hours, while one lorry left Umtali on March 6 and reached Fort Victoria (187 miles) on March 11. The General Manager in paying a tribute to the staff for maintaining the transport services in such discouraging circumstances, remarks that the motor drivers have acquired unique experience in the technique of de-bogging their vehicles.

Level Crossing Protection

In common with other countries attention is being paid in Rhodesia to the protection of level crossings, and as a start the Rhodesia Railways are providing flashlight warning signals at four of the busiest crossings in Salisbury and four in Bulawayo; the latest

type of red flashing lights operated by track circuits is to be adopted, as experience by the South African Railways has shown that this method of protection is the most satisfactory to minimise accidents. The eight crossings are all unattended.

Order for New Garratt Locomotives

The Rhodesia Railways recently placed an order with Beyer Peacock & Co. Ltd., of Gorton, Manchester, for four new 4-6-4 + 4-6-4 Garratt locomotives, to supplement the "10th" class 4-8-2 type engines working the Mafeking-Bulawayo section, laid with 60-lb. rails. Speeds of 45 to 50 m.p.h. are required on the level, and minimum speeds of 20 to 25 m.p.h. on grades of 1 in 80 with 550-ton trains. It was not found possible to fulfil these conditions with a larger type of conventional locomotive, which would be too heavy, and the Garratt type was therefore chosen. The boilers of the new engines will be very similar to those of the "16th" class Garratts. Due to the light rail on the Mafeking section, special attention has been paid to balancing in the design of the new engines.

INDIA

Train Falls into Breach

At 2.30 a m. on June 28 the engine, three covered wagons, and three bogie coaches of No. 33 Delhi—Dehra Dun mixed express fell into a breach in the line, caused by heavy rainfall, between Chandpur-Siau and Haldaur. [This accident was briefly described in the news columns of our issue of June 30—ED. *R.G.*] The breach occurred near a 2-spans-of-2 ft. culvert, where the bank is about 4 ft. in height only. Various reports place the number of killed at 8 and 10 and the injured at 21 or 22. Through traffic was diverted by an alternative route and local traffic was carried on with transhipment.

CEYLON

Container Baskets for the Railway

A scheme for the carriage of large consignments of parcels in container baskets in trains is being considered by the railway authorities, so as to offer an additional facility to the bigger shops and storehouses in Colombo, which regularly despatch parcels by train to Nuwera Eliya, Kandy, Bandarawela, and Diyatalawa. When the parcels are placed in these container baskets, made of cane, there will be greater security for the parcels and less risk of damage in transit. It is expected that the bigger shops will favour the proposal.

Closing of the Uda—Pussellawa Section

The Committee of Communications and Works has recommended that the Uda—Pussellawa section, previously mentioned in these columns, be closed as from January next. It is estimated that the resulting annual saving will be at least Rs. 76,000, and on the capital side there will be over Rs. 500,000 saved which otherwise would have to be spent in the near future on rolling stock and permanent way renewals, as well as the value of railway buildings that will be available for sale.

Reduction of Staff

Savings of Rs. 1,250,000 are anticipated from reduction of staff on the railway. This proposal, made by the Retrenchment Commission, has been accepted by the Railway Department on the assumption that there will be no appreciable increase of traffic, and that if there is a marked improvement in traffic, consequent on the introduction of the new Motor Ordinance, it will be essential to augment the staff at stations and goods sheds.

FEDERATED MALAY STATES

Air-conditioned Coaches

During the month of May two air-conditioned buffet cars and two air-conditioned sleeping saloons were placed in service on the day and night mail trains respectively between Kuala Lumpur and Singapore. The four vehicles were assembled in the railway workshops at Sentul. The underframes and air-conditioning plant were imported from England, but the steel panelled bodies and the interior decorations and furnishing of the vehicles are of local design and manufacture. Teak and local timbers have been used largely in their construction. Each vehicle weighs approximately 37 tons.

Buffet Cars

In each of the buffet cars seating for 18 passengers is provided on chairs of tubular stainless steel, upholstered with patterned repp. There is a cocktail bar at one end of the vehicle, complete with suitable seating, and a refrigerator underneath the bar counter; kitchen accommodation is also provided.

Sleeping Saloons

The sleeping saloons are upholstered in patterned repp in shades of brown and green. They provide sleeping accommodation for 8 persons and seat 24 passengers when converted for day use. Compartments are arranged in four pairs with communicating doors between each pair; these doors can be opened only by the operation of handles on both sides of the door. Toilet cabinets of polished stainless steel and non-blistering Roanoid sheeting are provided in each compartment.

Lighting and Air-conditioning

Electric lighting of all vehicles includes the provision of modern lamp shades, eliminating glare. Double windows are fitted, the outer ones of special glare- and dust-proof glass which prevents the passage of heat from the exterior of the coaches. All coaches are insulated so as to reduce noise to a minimum. Smoking is permitted in all air-conditioned coaches, as it has been found that the continual changing of the air by the air-conditioning plant ensures the elimination of an atmosphere obnoxious to non-smokers.

NEW SOUTH WALES

Rolling Stock Programme

The Government Railways' rolling-stock building programme includes five new 4-6-2 type express locomotives, similar to the "36" class, but embodying the latest improvements. To form five new tourist trains, 35 steel cars are being built; 18 existing cars are also being converted to corridor type. A further 24 electric motor cars and 24 trailers are being constructed to supplement the Metropolitan services in peak hours.

Automatic couplers have recently been fitted to another 1,000 goods vehicles, bringing the total number so equipped up to 14,000. Orders for 25 goods brake vans and 500 24-ton "U" type wagons have now been completed and the vehicles placed in service.

Remarkable Safety Record

It is now over 12 years since the last fatality occurred due to an accident to a train, a wonderful record of safe working on the Government Railways.

VICTORIA

New Locomotives

The new "H" class 4-8-4 (or Pocono) passenger locomotives which are to be built to obviate the necessity for double-heading on the heavily-graded Melbourne—Ararat section of the Adelaide route, will have three cylinders and a tractive effort of 55,000 lb.; their tenders will carry 14,000 gal. of water and 8 tons of coal. Seven of the "X" class 2-8-2 two-cylinder goods engines, fitted with boosters, are now in service. The programme of construction includes 20 "K" class goods engines.

Rail Welding

New 90-lb. rails are now welded into standard lengths of 225 ft. and 360 ft., and the rails they release in relaying are welded into 180-ft. lengths for secondary lines. Over 40,000 welds have already been made by the flash-butt process, without a single failure having occurred in the track.

So successful has been the flash-butt welding machine installed in the Spotswood permanent way depot, that the Commissioners have ordered a smaller and semi-automatic welder, and this has now been erected at Newport workshops. The new welder will deal with rolled steel sections and locomotive tubes besides rails.

SINGLE-LINE AUTOMATIC SIGNALLING IN U.S.A.

The overlap system used on the Southern Pacific Railroad

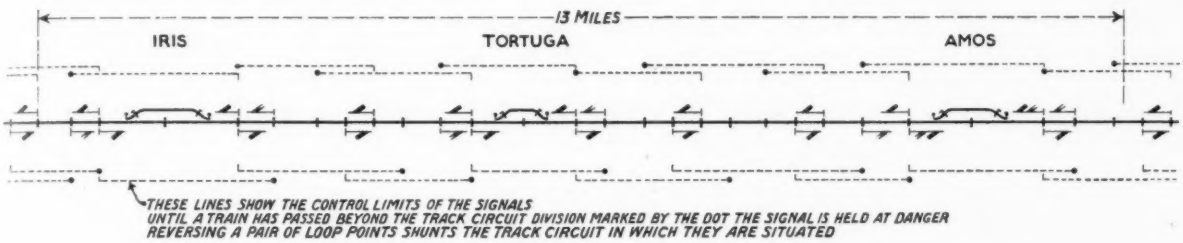
ON the night of September 20, 1938, two all-steel express trains were involved in a disastrous head-on collision at Tortuga, California, a passing place on the main line of the Southern Pacific Railroad between Los Angeles and New Orleans. In describing the accident and its effects* we referred to the system of single-line automatic signalling in use on the Southern Pacific Railroad, although it had no direct bearing on the mistake made by the employee responsible for the collision, who turned one of the expresses into the other, which was standing at a passing loop, by reversing the facing points at the last moment. By the courtesy of Mr. A. D. McDonald, President of the Southern Pacific Company, we are enabled to reproduce the accompanying diagram, showing the signalling arrangements at Tortuga and the two adjacent stations.

The principle adopted is that of the plain overlap or "straight" system, with normally clear two-position semaphore signals (light signals have been used for new work in recent years). In the overlap system the signals are controlled by ordinary direct-acting circuits, as on double lines, the control limits being, however, overlapped sufficiently far to ensure that opposing trains are stopped without risk of collision should they enter a single line section between loops through some mistake. The train running is, of course, regulated by the standard American operating rules, subject to timetable conditions, &c., and train dispatchers' orders, and the signals are provided to afford block signal protection and not to regulate the use of single-line sections as such.

The overlap system of single-line automatic signalling was the earliest form of such working proposed. Later what is known as the "absolute-permissive" system was introduced, in which the starting signal at a loop is controlled up to the next loop for opposing train movements, but for following ones only as far as would be necessary if the line were double. Many railways in America adopted this arrangement, which also found favour in some of the British colonies; but others, the Southern Pacific among them, adhered to the earlier straight system, which does not involve any special circuit combinations including stick relays. Mr. A. D. McDonald writes that "we consider our signal system entirely adequate and satisfactory."

Reference to the diagram will show that the main line is track-circuited throughout, but not the loop, or siding lines as they are called, at the passing places. When the distance between loop home signals is short enough, only one track circuit is provided, but at the longer loops two are installed. The points are worked from padlocked hand-lever stands on the ground equipped with switch contact boxes which shunt the track circuit ahead of the adjacent home signals when the points are moved from normal, thus putting the relative signals to danger and holding them there irrespective of the condition of the line. The signals have electric lamps, approach lighted. Reversing the loop points therefore lights the adjacent starting signals. Distant signals are provided for the loop home signals, and where necessary for starting signals also, but not for intermediate block signals. It is stated that a great many signal tests are made each month to see that adverse signals are properly obeyed, and that a failure to respect one is very rare.

The following rules governing the observance of automatic signals displaying a "stop" indication are of interest, in view of the prominence given to the subject in recent years in Europe:—


13 MILES
IRIS
TORTUGA
AMOS
THESE LINES SHOW THE CONTROL LIMITS OF THE SIGNALS
UNTIL A TRAIN HAS PASSED BEYOND THE TRACK CIRCUIT DIVISION MARKED BY THE DOT THE SIGNAL IS HELD AT DANGER
REVERSING A PAIR OF LOOP POINTS SHUNTS THE TRACK CIRCUIT IN WHICH THEY ARE SITUATED

Typical diagram showing single-line automatic block system, Southern Pacific Railroad

509. When a block signal indicates "stop," train may, without stopping, proceed with caution, not exceeding twelve miles per hour, under the following conditions:

(*a*) To enter siding where the switch is not more than one thousand feet beyond the signal and it can be seen that no opposing train has passed the next home signal governing such opposing train; or that an opposing or preceding train has stopped, or is moving prepared to stop, clear of the route to be used.

(*b*) To enter a yard when the switch is set for the receiving track and the route is clear to the fouling point of the switch.

(*c*) To continue on the main track when meeting or passing a train when the view of track is clear to the point where fouled by the train which is taking siding, or when the engineer is informed by a member of the crew of the train to be met or passed that the stop position of the signal is caused by the train to be met or passed being partly in the siding and not clear of the main track.

Under all other conditions, train, after stopping, will proceed as follows:

(*d*) On single track, when a preceding train is seen in the block, and the intervening track is seen to be clear, proceed at once with caution, not exceeding twelve miles per hour.

(*e*) On single track, except as provided in paragraph (*d*), when the next home signal, in either position, next distant signal in clear position, or a sign indicating end of block or block system limit, is in view and the intervening track is seen to be clear, proceed at once with caution, not exceeding twelve miles per hour. When not so in view, send a flagman ahead immediately, wait at least five minutes after he has started, and then follow, keeping at least one-fourth mile behind him until he reaches such viewpoint.

(*f*) On double track, proceed at once with caution, not exceeding twelve miles per hour.

* THE RAILWAY GAZETTE, January 27, 1939, pp. 125 and 150

Under paragraphs (*e*) and (*f*) speed of twelve miles per hour must not be exceeded until the rear of train has passed the next signal, or sign indicating end of block or block system limit.

A block signal with metal disc displaying letter " G " attached to signal mast will be known as a " Grade Signal."

When a " Grade Signal " indicates " Stop," train may proceed without stopping, provided paragraphs (*d*), (*e*), and/or (*f*) be complied with.

A block signal with a triangular number plate is actuated by some special protective device. Special action is required, as specified by instructions in timetable, when signal indicates " Stop."

When a number plate is reversed, showing yellow, the provisions of this rule will not apply, and Rule 513 will govern.

509 (G). A flagman, preceding a train stopped by a signal, must watch for broken rails or other defects in track, and when train is authorised to proceed without a flagman in advance both engineer and fireman must watch for such defects.

509 (H). The engineer of a train entering a block as prescribed by rule 509 will be held responsible for an accident caused by encountering a train or obstruction in the block.

513. When a number plate is reversed showing yellow and signal indicates " stop," train may, without stopping, proceed with caution through the block.

AUTOMATIC LOCOMOTIVE FUEL REGULATION

A system controlling the supply of coal and its distribution in the fireboxes of engines fitted with mechanical stokers

AN interesting system for automatic regulation of the coal fed to a locomotive firebox by a mechanical stoker has been developed by M. Juljan Madeyski, of the Polish State Railways. The principle is that steam taken from the main steam pipe, and exhaust steam from the blastpipe, are made to act on a special differential system of valves which control the flow of steam from the regulator to an auxiliary engine driving the fuel feed mechanism, and to the distributor system which distributes the fuel in the firebox. The most interesting portion of this system is the differential valve arrangement. This comprises a valve block 1 (Fig. 1) on to one end of which a cylinder body 2 is screwed. The former contains the valves which regulate the steam flow, while the latter houses the differential controls of these valves. The end of the cylinder body is covered with a cap 3. Two valves, 4, 5, are provided, the former controlling the flow of steam from the regulator to the auxiliary engine actuating the feed, and the latter the flow of steam from the regulator to the distributor system. Both of these valves are firmly bolted on to the end of the piston rod 6, and move together. When they are raised, steam entering the valve block from the regulator by the pipe 7 is allowed to escape from the block by the pipe 8 to the auxiliary engine driving the fuel feed and by the pipe 9 to the fuel distributor.

The operation of the differential system is as follows. Steam from the main steam pipe is brought to the differential control by a tube 10 and admitted into the inside of the hollow piston rod 6. Holes in the end of the piston rod allow the steam to flow into the space between the end of the piston rod 6 and the cap 3, and to press on the end of the piston rod. This pressure

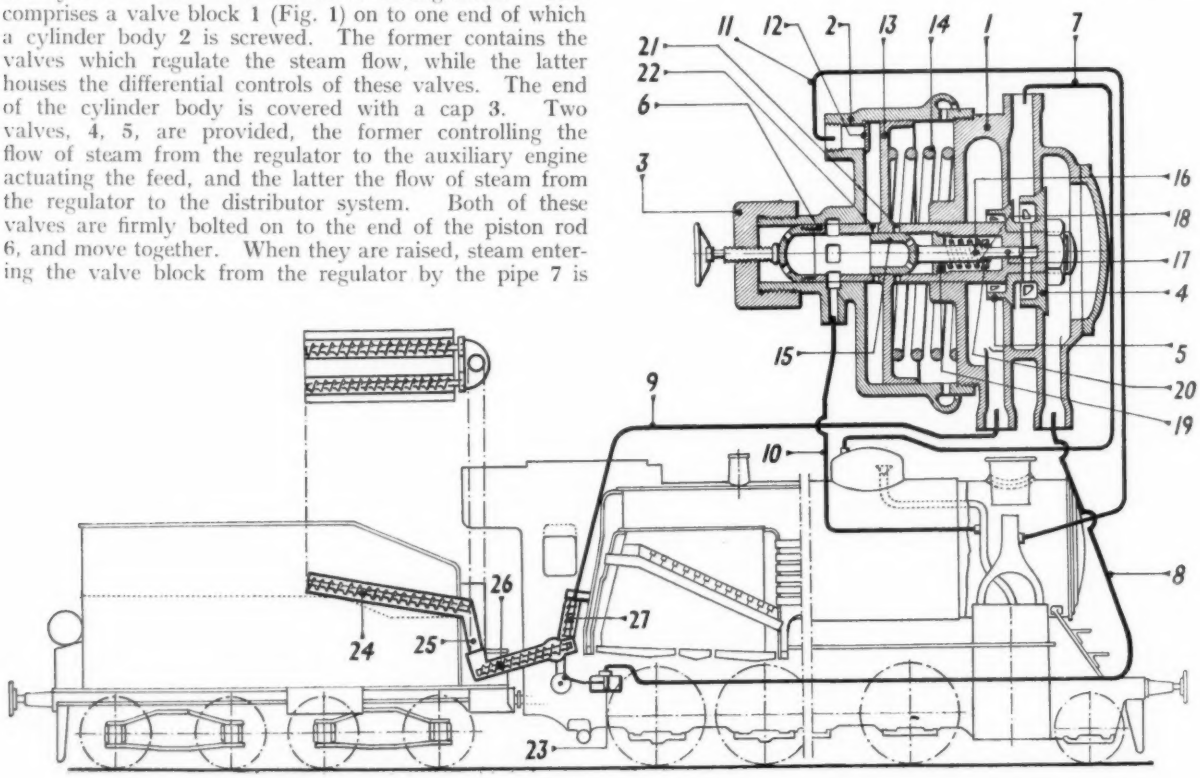


Fig. 1

tends to open the valves 4, 5, but is not sufficient actually to open them. This is accomplished by steam from the blastpipe, taken by a tube 11 to the differential control. It enters this through a valve 12, and presses against a piston 13 cast in one piece with the piston rod 6. The combined pressure of the steam against the piston and that pressing against the piston rod, are balanced by a spring 14 which presses against the piston 13. The variations in steam pressure in the blastpipe, therefore, cause a variation in the balance between the steam pressure entering the differential system by the tube 11 and the pressure of the spring 14. The greater the pressure in the blastpipe, the further is the piston 13 forced down, and hence the wider the valves 4, 5 will be opened, feeding more steam to the fuel feeding mechanism and distributor. However, when the pressure in the blastpipe drops, the piston 13 is kept back by the spring, and the valves 4, 5 again close.

In order to render the system sensitive to the pressure of the steam in the boiler as well, the steam from the steam pipe entering the differential system by the tube 10 acts on a small piston 15 which slides inside the piston rod 6. The rod 16 of this piston ends in a terminal piston 17 subjected to the pressure of the steam entering the valve block from the regulator. This small piston is kept in equilibrium by a spring 18 which connects with the piston rod 6 by means of the ring 19 and with the small piston rod 16 by the ring 20. Normally the two sets of holes 21, 22 are covered by the piston when it is in equilibrium. If, however, the pressure in the boiler falls below the normal maximum, the small piston 15 moves to uncover the holes 21 so that additional pressure can escape from the inside piston rod 6 and press on the piston 13, thus opening the valves wider and accelerating the fuelling. On the other hand, if the pressure of steam in the boiler rises above normal, the small piston 15 is moved so that it will uncover the holes 22, thus permitting the steam pressure inside the piston 6 to escape to the underside of the piston 13 so that it adds its force to that of the spring 14 and tends to close the valves, slowing down the fuelling of the locomotive.

As already mentioned, the outlets from this system of valves run to an auxiliary steam engine driving the fuel feed and the fuel distributor. This auxiliary engine is merely a small steam engine of ordinary design 23 which drives an Archimedes screw type feed. Two screws 24 lie on the top of the coal in the tender and convey it into a slide 25 down which it falls into the intake of a screw type crusher 26. This crushes the coal to about the size of a walnut and feeds it into the bottom of a further screw 27 which raises the coal up to the level of the door of the firebox. The fuel distributor is fixed to the lower part of this door. Coal from the screw 27 enters the two chambers 28, 29 (Fig. 2) of the distributor, and from here it is moved by the pressure of steam arriving at the distributor by the pipe 9 and escaping by the nozzles 30 into the admission chambers 31, 32, the upper surfaces of which are curved so as to guide the coal smoothly into the firebox.

Placed above and around the sides of the admission chambers 31, 32 are two guides 33, 34, each of which swings on a pivot 35 in a horizontal plane. The movement of these guides, therefore, tends to prolong or shorten the distance the coal travels through the admission chamber, and at the same time changes the position of the outlet from the centre of the firebox door to the sides; the coal enters at the centre when these guides have swung back entirely behind the walls of the admission chamber, and at the sides when the guides, having swung out into the firebox, have extended the admission chamber to its greatest length. This system

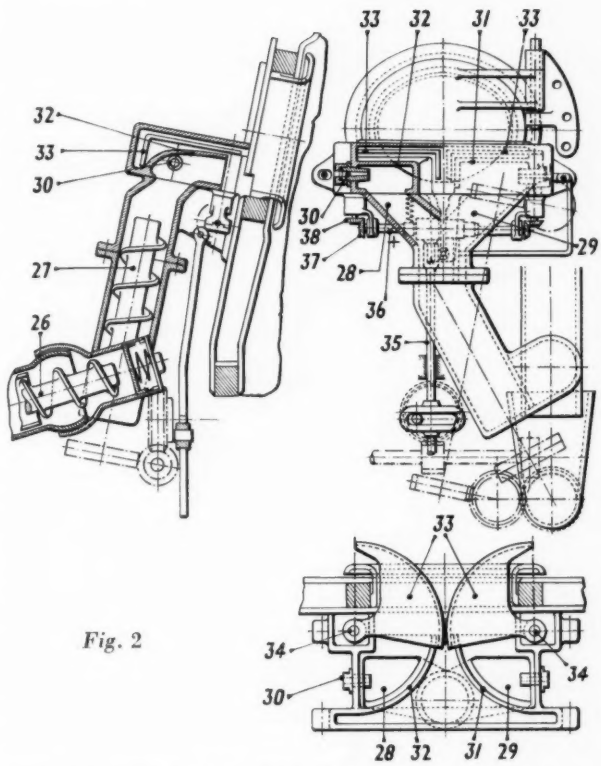


Fig. 2

permits a regular distribution of the coal over the whole width of the front of the firebox.

The system is driven by a rod 35 from the auxiliary engine 23, which also operates the coal feed. This operates a shaft 36, provided with guide threads so that as it turns, it also moves along its axis, alternately backward and forward. In this way a bevel gear 37 on the shaft 36 is alternately brought into contact with another bevel gear 38 on the shaft of the guides 34, and then disengaged from it. During engagement the guide is moved outwards so as to guide the coal into the corners of the firebox. As soon as the gears become disengaged a spring pulls the guide smartly back out of the firebox and behind the walls of the admission chamber. The system, therefore, avoids subjecting the guide, which is necessarily of light construction, to the excessive heat in the firebox for a longer time than is necessary.

M. Madeyski claims that it not only solves the problem of regulating the amount of fuel very exactly to the needs of the engine and the condition of the draught, but also that of obtaining an even distribution of the fuel in the firebox, and thus inducing a greater efficiency. Tests are still in progress, so that it is not possible yet to say exactly to what extent this system permits of fuel saving.

BRITISH STANDARD SPECIFICATIONS FOR WROUGHT IRON.—The British Standard for wrought iron for use for railway purposes has recently been revised and the scope extended to cover wrought iron for general engineering purposes. It is now B.S. 51-1939. The requirements for best Yorkshire iron are issued in a separate publication, B.S. 858-1939. B.S. 51 now includes the three grades only, namely, A, B, and C. The mechanical properties have not been altered but the wording has been improved to remove a number of ambiguities. Copies of these specifications can be obtained from the British Standards Institution, 28, Victoria Street, S.W.1, price 2s. each.

ELECTRO-MECHANICAL SIGNAL BOX IN FRANCE

Small handles for controlling electric signals, combined with "half-revolution" levers for points, provide a compact layout

A FEW years after the war the former Paris—Orleans Railway, in conjunction with the Etablissements Saxby at Creil (Oise), introduced at certain stations an electro-mechanical signalling system, which was found so satisfactory that it was in due course adopted at quite a number of places. The mechanical levers for operating points and facing point locks were of the so-called "half-revolution" type, frequently seen on the Continent, in which the whole of the locking frame is above the floor, and the point rodding is driven by rack-and-pinion gear. Instead of using similar full-sized levers for controlling electrically operated signals, small three-position handles were provided, and these, mounted at convenient intervals among the large levers, and operating mechanical locking in the usual manner, saved much space. In Great Britain this principle has, of course, long been known in the Sykes electro-mechanical apparatus, of which there are only a few examples left. The large one at Victoria (Central), Southern Railway, has now been replaced by a full power installation.

The French Saxby electro-mechanical system was also adopted outside the Paris—Orleans system, and the accompanying illustration shows the St. Lazare, Paris, signal box of the former State system of lines, which was visited by the members of the Institution of Railway Signal Engineers during their summer meeting in 1931. The construction of both the "half-revolution" mechanical levers and the small signal handles can be clearly seen. The latter can move on either side of a central normal position, and they serve to select signals for different directions of traffic. In certain cases, subsidiary, handles, of the same general form but able to occupy up to ten different positions, are used to enable conditional locking to be eliminated.

Interior of electro-mechanical signal box, St. Lazare terminus, Paris, showing "half-revolution" rack and pinion levers for points, and miniature handles for electric signals. The foot contacts for electric lever locks are also shown. The chief signalman seen on duty, M. Grellier, was recently made a member of the Legion of Honour

As only one stop signal (*signal carré*) is provided in France as a home signal where routes diverge, a large amount of conditional locking becomes necessary at times if only one lever is allocated to this signal; the use of several levers to enable straight locking to be used would waste space. The multi-position handle is therefore added to achieve the same object. It acts on a so-called Lebeau "route cylinder," a rotary framework in which the various locking pieces for the different combinations are fitted; these pieces respond to the movements of the small selector handle, acting as locking elements when the signal handle is itself manipulated. The locking mechanism is of the grid type, still favoured in France.

It is understood that this system has proved very satisfactory in service. It forms a variation of the "gear lever" found in some old mechanical installations in Great Britain, such as Waterloo "A," London & South Western Railway. At the St. Lazare terminus, Paris, all signals are now colour-lights, and the lines are completely track-circuited, the approach lines being fitted with automatic signalling in the suburban area.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

Cartage and Containers

A REVIEW of freight services and equipment recently issued by the British Railways Press Office shows that railway cartage services are now operated by 10,367 parcel and goods motor vehicles, and there are 11,163 railway horses and 24,823 railway horse vehicles. Country lorry services connecting railway centres with outlying country districts, hamlets, estates, and farmsteads radiate from 2,822 stations, and in a number of instances serve premises up to 20 miles from the railway station. Increasing use is being made of mechanical horses, of which there are now some 4,000 in service. In connection with their railhead distribution services, the railways will arrange if desired to furnish delivery vans carrying trade names, with drivers in the livery of the firms concerned. Railhead distribution services cover nearly 300 towns and villages within a radius of 20 miles from Newcastle-on-Tyne, and in the Manchester area extend as far as Preston in the north and Buxton in the south. Containers have shown a remarkable increase in numbers and the extent to which they are used. At the end of 1938 they numbered 15,521, as against 1,574 in 1928. From 1930 to 1934 the number of journeys by containers increased by 146 per cent. The 1938 figures showed an increase of 41 per cent. compared with 1934.

Composition of the London Bus Fleet

AS in previous years, we have compiled a table showing the composition for the bus fleet of the London Passenger Transport Board classified departmentally, and also under types of vehicles, motive power, and passenger accommodation. We are indebted to the board's officers for their kind co-operation, for without this it would not be possible for this annual table to include such comprehensive details, which our experience shows to be widely appreciated by readers in various parts of the world who are following with interest the standardisation policy of London Transport as exemplified by its road fleet. Obviously it is impossible to satisfy the requirements of widely different types of service without having in the fleet numbers of vehicles with special characteristics, but a close scrutiny of the accompanying table will show what a high degree of standardisation has been achieved and how many of even different types of vehicles adhere to standard characteristics and differ only as far as is necessary to meet service requirements. The total of ST type petrol-engined double-deck buses remains unchanged, but the LT double-deck units are being converted rapidly from petrol to oil fuel. Thus 757 petrol and 467 diesel a year ago have now become 353 petrol and 869 diesel. The STL stock has increased from 2,334 to 2,407 and of these only 424 are now petrol-engined (against 574 last year) whereas the diesel total of 1,760 a year ago has now risen to 1,983. In the Central area the STD (Leyland Titan diesels) remain at 100, but the type has now made its entry into the Country department with 14 units. Of TD type Leyland Titans there are now only 35 petrol-engined double-deckers in the whole fleet, whereas a year ago there were 111 in the Central fleet and 20 in the Country fleet, in addition to 9 double-deck TD diesels and 2 petrol single-deckers. One type which has disappeared entirely is the TR (Leyland petrol-engined Tiger) of which there were 5 private hire coaches a year ago. Another disappearance is the R type (A.E.C. petrol-engined Reliance) of which the Country department had 33. On the other hand the TF type, a Leyland single-deck coach with a flat diesel engine, is now an important unit of the board's fleet. A year ago the type was represented by one experimental coach, whereas now there are the 12 private hire coaches in the Central fleet which we described in our issue of June 2, and also 58 in the hands of the Country department, part of the 75 being built for Green Line service. The introduction of the TF type to Green line service has also resulted in the whole of the Green Line coaches being equipped with diesel engines. A year ago there were 208 petrol-engined T type coaches at work and only 160 diesel-engined T, whereas the modernisation of this fleet has resulted in the withdrawal or conversion of all the petrol-engined T. The total of the whole fleet this year is 6,182 as against 6,204 a year ago and 6,266 in 1937; this means that the fleet has remained virtually constant, as in some cases higher-capacity vehicles have replaced obsolete types. The Central bus fleet is 5,138 (against 5,142) and the Central coaches 44 (against 46). In the Country department the

LICENSED BUSES AND COACHES AT JUNE 30, 1939

Type	Type of Engine and Chassis	Type of Body (Double-deck or single-deck) and Approximate Seating	Central		Country	
			Buses	Coaches	Buses	Coaches
ST	A.E.C. Regent (Petrol)	D/D 48/54	1,011	—	126	—
LT	A.E.C. Renown (Petrol)	D/D 54/60	353	—	1	—
LT	A.E.C. Renown (Oil)	D/D 56/60	869	—	—	—
LT	A.E.C. Renown (Petrol)	S/D 30/35	192	24*	—	—
T	A.E.C. Regal (Petrol)	S/D 26/32	54	—	24	—
T	A.E.C. Regal (Oil)	S/D 30/34	5	—	57	287
STL	A.E.C. Regent (Petrol)	D/D 50/60	424	—	—	—
STL	A.E.C. Regent (Oil)	D/D 48/56	1,983	—	169	—
STD	Leyland Titan (Oil)	D/D 55/56	100	—	14	—
TD	Leyland Titan (Petrol)	D/D 50/56	35	—	—	—
Q	A.E.C. (Petrol)	D/D 53/55	—	—	4	—
Q	A.E.C. (Petrol)	S/D 35	—	—	1	—
Q	A.E.C. (Oil)	D/D 51	—	—	1	—
Q	A.E.C. (Oil)	S/D 32/37	57	—	124	51
BD	Bedford (Petrol)	S/D 20	—	—	8	—
C	Leyland Cub (Oil)	S/D 20	23	—	73	—
C	Leyland Cub (Petrol)	S/D 20	—	8†	1	—
CR	Leyland Cub rear engine (Oil)	S/D 20	—	—	1	—
DA	Dennis Dart (Petrol)	S/D 17/20	32	—	—	—
TF	Leyland flat engine (Oil)	S/D 33/34	—	12*	—	58
	Total	.. ..	5,138	44	604	396

* Private hire † Interstation buses

total of buses has risen from 570 to 604 but the Green Line coaches have dropped from 446 to 396. To those particularly concerned with the maintenance of large standardised fleets we would recommend a comparison of the figures in the whole series of tables, which we have published annually since 1936.

Organising Road Transport for an Emergency

CRISIS centres change, and tension mounts and falls, but preparation for an emergency whencesoever it may spring is being steadily pursued. Last February the Ministry of Transport scheme for the emergency organisation of road transport was set in motion, and "A," "B," and "C" licence holders were asked to form themselves locally into groups of 25 to 50 vehicles; at the same time every operator was requested to furnish particulars of his vehicles for the information of the area traffic commissioners. It has now been announced by the Ministry of Transport that at the end of May particulars of 441,700 vehicles—nearly 90 per cent. of the total affected—had been supplied. A response of practically 100 per cent. was received from the Northern and East Midland traffic areas of England and the Northern and Southern areas of Scotland. The Metropolitan, South-Eastern, and North-Western areas were below the average. By the end of May, 7,468 groups had been formed, comprising 316,850 vehicles or about 65 per cent. of those affected. Again the two Scottish and the East Midland areas showed the best response, sharing this distinction with the Eastern Traffic Area. The Northern and South-Eastern areas were also above the average. It is again emphasised that should a fuel rationing scheme have to be introduced in an emergency, it will not be possible to allocate supplies for vehicles which do not figure in the register.

Gas-Driven Vehicles

RENEWED interest is now being taken in France in the possibilities of ordinary domestic gas as a source of power for motor vehicles. Several papers on the subject have lately been read before the Société des Ingenieurs Civils de France, and reproduced in the journal of that body. One author, M. Schereschewsky, recalled the first important experiments in this direction undertaken in Paris in 1926, as a result of which it could be claimed that gas was not only a substitute for petrol, but a carburant possessing certain qualities in a higher degree than other types. Gas-driven engines have an excellent output, thanks to the high compression which is possible. Impetus to their development has been given in some countries in the last three years by the policy of reducing imports of fuel, and a census taken a year ago showed that Germany had ten thousand vehicles driven by gases of various kinds. Berlin, for example, has had experience for six years in the operation of double-deck buses by compressed gas. Some practical details on the operation of gas-driven vehicles were given in another paper by M. Venot. It is the usual practice, he said, for the gas to be stored in hydrogen-type cylinders, each containing about 318 cu. ft. of gas at a pressure of 2,845 lb. per sq. in. This is equivalent to about 1·2 gal. of liquid fuel. The empty weight of each cylinder is about 1 cwt. Usually the cylinders are carried longitudinally or transversely on the chassis, or occasionally on the roof. In certain lorries they stand vertically behind the driver's cab. The number of cylinders required for normal service on a commercial vehicle is calculated on the basis that about 60 cu. ft. of gas correspond to $1\frac{3}{4}$ pints of liquid fuel. Gas does not pass direct from the storage cylinders to the mixer (or carburettor), but is taken through a decompressor which feeds the engine with a supply at constant pressure. Apart from providing for the equipment already noted, the principal requirement in converting a petrol vehicle for gas is to raise the compression of the engine by fitting different pistons or modifying the cylinder heads. At the conclusion of his paper M. Venot enumerated 195 commercial gas-driven vehicles of various types at present running in different French cities, of which 40 (including one Citroen bus) are in Paris, and 20 (including one Rochet-Schneider bus) are in Lyons.

The Road-Rail Conference

ONE of the most important features of the Transport Advisory Council's report on the railway companies' application for a "square deal," was the agreement it recorded between them and the road haulage interests. This undoubtedly facilitated agreement being reached with a number of other interests and, therefore, pending the introduction of legislation to implement the council's recommendations, the manner in which the road-rail agreement is being worked out by the two parties is of considerable interest. It will be appreciated that the replacement of competitive conditions by any substantial measure of collaboration is likely to have a far-reaching effect upon transport services generally. The aim of the two sides is the establishment of an entirely new set of conditions under which both transport organisations will function in a co-ordinated manner, and it is clear that pending legislation both parties are endeavouring to make the utmost possible progress. A Road and Rail Central Conference, with joint chairmen and joint secretaries, has already been established for the purpose of settling the basis on which voluntary rates agreements can be entered into in regard to merchandise traffic by road and rail. It is suggested that all such agreements shall, after the new legislation has been passed, be submitted for sanction to a tribunal before whom traders will have the right to appear. The road and rail representatives have agreed, however, to enter into conferences with traders before such agreements are put forward for official sanction, with the object of securing joint agreement and avoiding disputes before the tribunal. The task before the central conference is one of magnitude, involving the creation of a common classification of merchandise as the basis of correlated road and rail rates structures. This involves reducing the present 66 classes in the railway classification to something like six or eight and fixing appropriate scales of charges and uniform conditions of carriage.

The conference is meeting monthly at the Ministry of Transport and has appointed sub-committees to consider and report upon such matters as classification, conditions of carriage, general purposes, and licensing. These sub-committees have already met on several occasions, but it is manifestly impossible for the central conference to do more within a reasonably limited time than agree the general conditions of carriage, and lay down broad principles. During the present month, therefore, regional committees—composed of an equal number of road and rail representatives—have been set up in each of the twelve traffic areas of the road licensing authorities. Until legislation is passed, the committees will be powerless to enforce their decisions, and hence the goodwill of all concerned is essential to progress in the interim period. A committee will review the road and rail rates charged for the principal streams of traffic in its area, and make recommendations to the central conference as to their correlation and adjust-

ment if they are considered uneconomic. In the case of long-distance traffic, this task will involve consultation with other regional committees and, pending the creation of an agreed classification, considerable care will be necessary to prevent the regional committees acting on lines which may embarrass other regions or the central conference. The committees will also deal with matters affecting the licensing of road vehicles. The railways have already given an undertaking that they will drastically reduce their opposition to applications for certain licences by existing road hauliers for two years after they receive their freedom. They have since indicated that, as a gesture of goodwill, it is proposed to reduce forthwith the number of cases where they at present oppose certain applications for the renewal or small extensions of road licences. This action should facilitate co-operation, but the extent to which these regional committees can function successfully remains to be seen. *Prima facie* it seems probable that, until an agreed classification is evolved, any extensive correlation of rates in the various regions may present serious difficulties.

Transport in Malaya

THE first report has now been published of the Federated Malay States Transport Board, covering the period July 30, 1936, to December 31, 1938. The board was appointed by the High Commissioner on August 27, 1937, under the provisions of the Road Traffic Enactment, 1937. Its jurisdiction extends only to the four Federated Malay States of Perak, Selangor, Negri Sembilan, and Pahang. In considering the transport problems of the Federated Malay States, however, it is not possible to leave out of account the transport communications between the Straits Settlements (Singapore, Malacca, and Penang including Province Wellesley) and the Unfederated States of Kedah and Johore. The Federated States have an area of 27,540 square miles with a population of 2,052,729, whereas Malaya as a whole has an area of 53,240 square miles with a population of 5,137,470. A Transport Licensing Enactment was passed on December 11, 1934, based on the recommendations of a committee appointed to consider ways and means of increasing the revenue of the Federated Malay States Railways by eliminating the uneconomic competition of road transport. It provided for the control of commercial road transport by a Central Transport Licensing Board and local boards. Owing to the difficulty of finding a suitable officer to undertake the task of setting up the new licensing machinery this enactment was not brought into operation. Mr. S. W. Nelson, an official of the Ministry of Transport, was seconded from the Home Civil Service in July, 1936, for this purpose. Meanwhile, a joint committee on which the Federated Malay States and the Colony were represented, had been set up to prepare comprehensive motor legislation. On his arrival Mr. Nelson was immediately appointed to serve on this committee. In order to avoid delay it was decided that the Federated Malay States Government should proceed at once with the revision of its transport laws, leaving the Colony to modernise its legislation at leisure. As the Transport Licensing Enactment was found to be unworkable, an entirely new Bill was drafted based largely on recent British road traffic legislation, with special provisions to meet conditions in Malaya, and was passed by the Federal Council on June 29, 1937. The provisions of the new enactment came into effect on January 1, 1938, except those relating to compulsory insurance which came into force on July 1, 1938.

The Transport Board set up under the new enactment is concerned mainly with the co-ordination and control of means of and facilities for transport. The Chairman (Mr. S. W. Nelson, A.M.Inst.T.), as the only whole-time member, is the licensing authority. Part 3 of the report contains a most interesting description of the hirecars, the most popular unit of road passenger transport, generally owner-driven. At first they were entirely unregulated, the vehicles were generally in poor condition, breakdowns were frequent, and passengers were at the mercy of the driver. Then the hirecar drivers formed unions among themselves, but uneconomic competition continued and the standards of maintenance were not improved.

The steady and tactful work of the licensing authority has now resulted in the co-operative provision of road services by the existing vehicle owners. Fifty companies with a total nominal capitalisation of $3,345,000 were formed during 1937, and by the time that the Transport Board's licensing system came into operation on January 1, 1938, the rationalisation of the bus industry had been virtually completed. On the subject of road and rail passenger services the report suggests that, with the fixing of economic road fares and the raising of the standard of bus operation, the railways should be able to compete on a fair basis with road services. Once these conditions had been attached, limitations should not be placed on the number of road vehicles used. Different conditions might arise on trunk services where the traffic was mainly through traffic, which might equally well be catered for by rail. A further measure of protection has been afforded to the railways by limitations imposed on the length of bus services on the main north-south road which is never far from the railway. A list is given of the more important road services. The main trunk road in the Federated Malay States from Parit Buntar to Gemas (approximately 330 miles) has been divided into thirteen sections for licensing purposes, the longest of which is the 42-mile section connecting the capitals of Selangor and Negri Sembilan (namely Kuala Lumpur and Seremban). This is the longest competitive road service. There are three other competitive services aggregating 77 miles, of which the longest section is 33 miles. Road services which do not compete with the railways cover approximately 806 miles, and most of these sections are well above 42 miles.

The control of goods vehicles is effected through the medium of carrier's licences (A, B, and C). The licensing authority has not yet exercised his powers to attach to carrier's licences conditions governing wages, conditions and hours of employment, and the rates to be charged. The fact that most goods vehicles are owner-driven would render any wage condition largely ineffective. The enforcement of conditions relating to rates would present special difficulties, and it is not proposed to embark at present on the building up of a rates structure for the road transport industry. Unscrupulous rate cutters cannot long exist under present operating conditions, and most of them have already been eliminated. In dealing with the first renewal applications for licences, the licensing authority has extended the use of a condition under which the carrier is given freedom of movement anywhere in the Federated Malay States save that his use of the main trunk north-south road is restricted to a defined section. The new "Zoning" method of control has the advantage of preventing the growth of wasteful competition with the main railway services whilst preserving the freedom of the road carrier to expand his business in non-competitive fields. The report contains a general consideration of the road and rail problem, which puts many questions but gives no answers.

THE LARNE-STRANRAER MOTORCAR FERRY

New facilities for rapidity and ease of handling at both harbours

THE value of the Larne—Stranraer route, affording as it does a rapid and direct link with the whole of Northern Ireland, was further enhanced on July 8 with the entry into service of the *Princess Victoria*, a diesel-driven ship with direct loading facilities for motorcars. The *Princess Victoria* is able to carry up to 80 cars on one deck, and the arrangement is such that cars go aboard under their own power. It is, however, due to the planning of the special ramps at Stranraer and Larne that such a speedy rate of discharging as 80 cars inside 20 minutes can be achieved.

The Stranraer Movable Ramp

The movable ramp at Stranraer is 60 ft. in length and has a maximum grade of 1 in 10. It is in the form of a through bridge and has two landing flaps each 10 ft. in length, each flap being half the width of the main ramp. The whole structure is welded so as to keep down the weight. The ramp itself is counter-balanced by weights so that very little power is needed in raising or lowering. The movable ramp and landing flaps are manually operated, while the main ramp can be adjusted to suit the different tide levels at intervals of 12 in. When adjusted, the ramp is locked by two separate bolts operated by one hand lever. These take the whole weight of the ramp. The locking lever is interlocked with the gate at the shore end of the ramp and with one of the landing flaps.

Before the locking lever can be drawn to unbolt the ramp it is necessary to close the gates and withdraw an Annetts key. It is also necessary to raise one of the landing flaps a sufficient distance to prevent cars from getting on to the ramp from the ship before another key can be inserted in the lock of the locking lever. In this way, two keys are needed to free the locking lever which ensures that the ramp is protected at both ends before the locking bolts are withdrawn. When the second key is withdrawn the landing flap is locked in its raised position. The shore end of the ramp gives access to an extensive car park, which involved the use of about 9,000 cu. yd. of hard material. This filling is extended for an average distance of 300 ft. along the pier and over 80 ft. seawards from the side of the old pier.

In making these arrangements for car traffic due consideration was given to speedy unloading of the considerable quantity of live cattle sent from Northern Ireland. Alterations in this direction have entailed shifting the line of the original cattle gangway to bring it to the seaward side of the car park, which means crossing the line of outlet for cars leaving the short ramp by means of a portable gangway. This portable section is disinfected in the same way as the main gangway so that, at no time, is there any risk of cattle coming into contact with a non-disinfected surface on their way to the sheds. When not in use, entrance to and exit from the cattle gangway is barred by gates, and, to enable pedestrians to cross the gangway when cattle are passing along it, a footbridge has been provided. A platform for mail traffic and an enlarged entrance are other innovations in the station itself.

The work of preparing the car park and altering the line of the cattle gangway was carried out by the staff of the District Engineer, Mr. C. Marsden. P. & W. MacLellan of Glasgow carried out the contract for the movable ramp while Jackson, Brown & Co., of Glasgow were responsible for the timber piling work to carry the ramp; the whole work was done to the requirements and under the supervision of Mr. A. H. McMurdo, Divisional Engineer for Scotland, L.M.S.R.

The Larne Movable Ramp

As at Stranraer, the ramp at Larne is designed to operate directly on to the deck of the *Princess Victoria* at all states of the tide. It is constructed in two portions comprising a main ramp 70 ft. in length, hinged at the shore end, with an end ramp or drawbridge 11 ft. in length with a 4 ft. flap for lowering direct on to the ship's deck. The ramp has been tested to carry two 10-ton vehicles travelling along together on its length at 10 m.p.h. and braking.

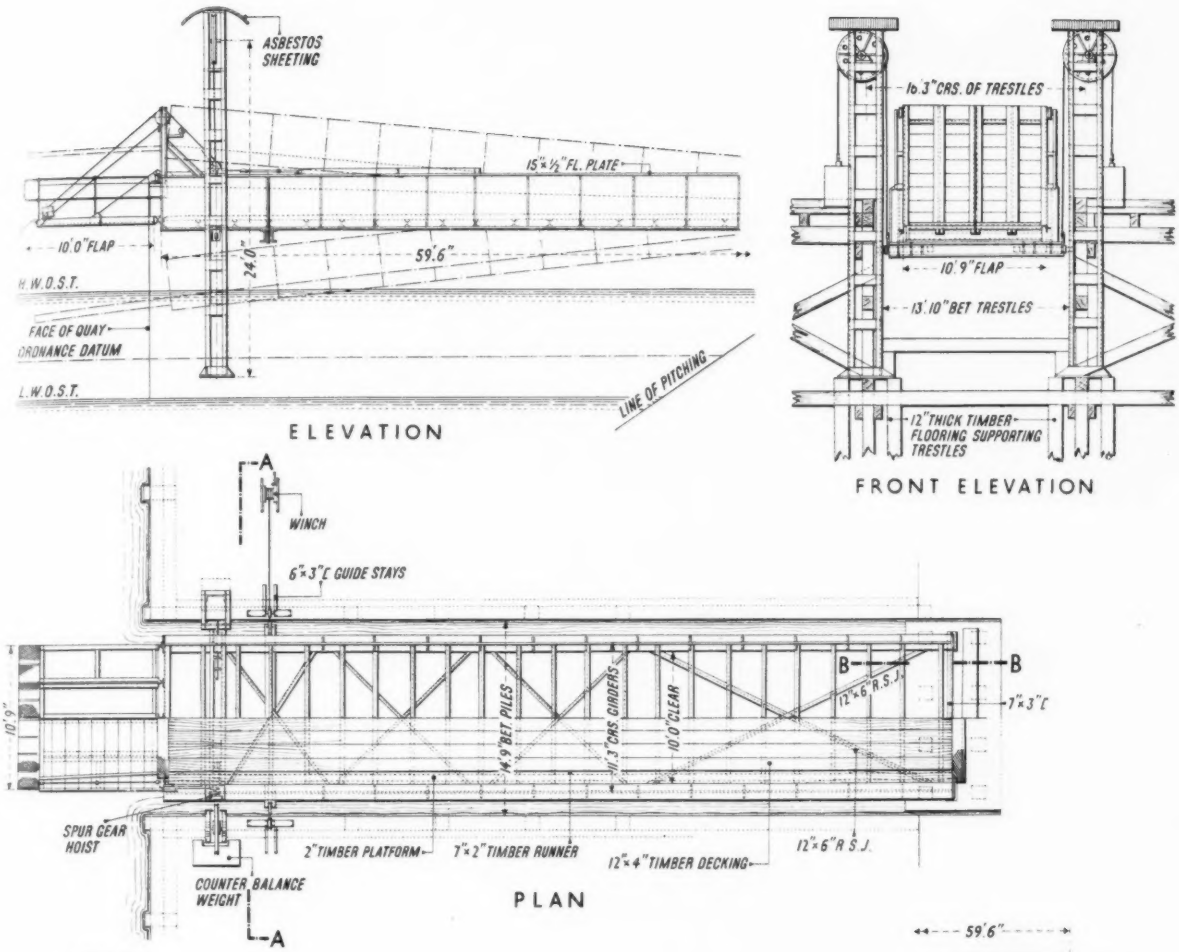
One of the difficulties which had to be overcome in the design was that it was necessary to allow for railway trucks (of both 5 ft. 3 in. and 3 ft. gauges) to be run across the ramp at right angles when the ramp was not in use. Two sets of rails have been let into the surface across the ramp and locking bolts fitted so that when not in use the main ramp can be locked in the horizontal position. In view of this the ramp and locking gear had to be designed to carry a load of 25 tons when locked in this position.

The minimum clearance under the gallows is 15 ft. at all states of the tide, thereby allowing double-deck buses to be run on to the ship if desired. The ramp is lowered and raised at a speed at 5 ft. a minute. The factor of safety of all ropes is 8. The equipment is electrically operated throughout, though provision is made for hand operation if necessary. The main ramp is hoisted and lowered by means of two 12½ h.p. slip-ring totally-enclosed weatherproof Crompton Parkinson motors, connected together electrically to operate in synchronism, located in winch houses on each side of the main gallows frame. The end ramp is operated by a 10 h.p. slip-ring totally-enclosed weatherproof Crompton Parkinson motor installed in the machinery room inside the main ramp.

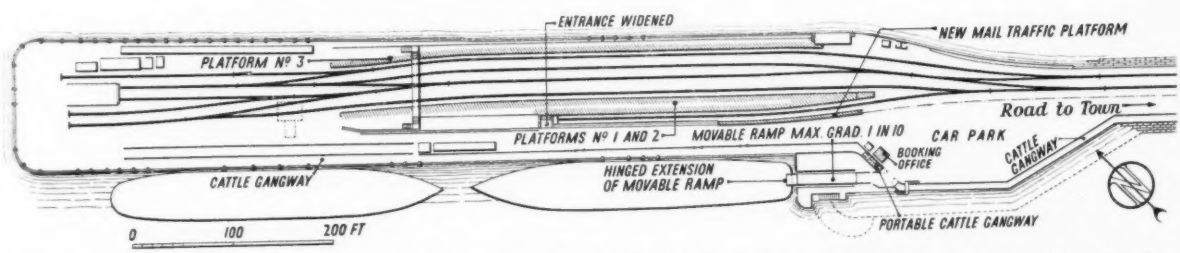
The main control point is located in one of the winch houses where push-button switches for the various motions are mounted on the side of an Allen West control panel. At the commencement, both the main ramp and the end ramp are controlled by the operator in the winch house by means of push-button switches. Once the end ramp has come to rest on the ship's deck the control is, however, entirely automatic, and by means of switches in the machinery room inside the main ramp the ramp is hoisted or lowered in accordance with the rise and fall of the tide. A powerful spring and dashpot is provided to take up any fluctuations due to waves. All motions are protected against over-running or faulty operation by means of shunt and series limit switches.

The ramp was constructed, and erected on the site by Spencer (Melksham) Limited, the provision of the necessary foundations, and the installation of the wiring being carried out by the railway company's own staff. The ramp was designed, and installed to the requirements of Major Malcolm Speir, Manager N.C.C. Section, L.M.S.R., by Mr. F. G. Marshall, Electrical Assistant, under the direction of Mr. M. Patrick, Locomotive Superintendent, and Mr. N. C. Cain, Civil Engineer.

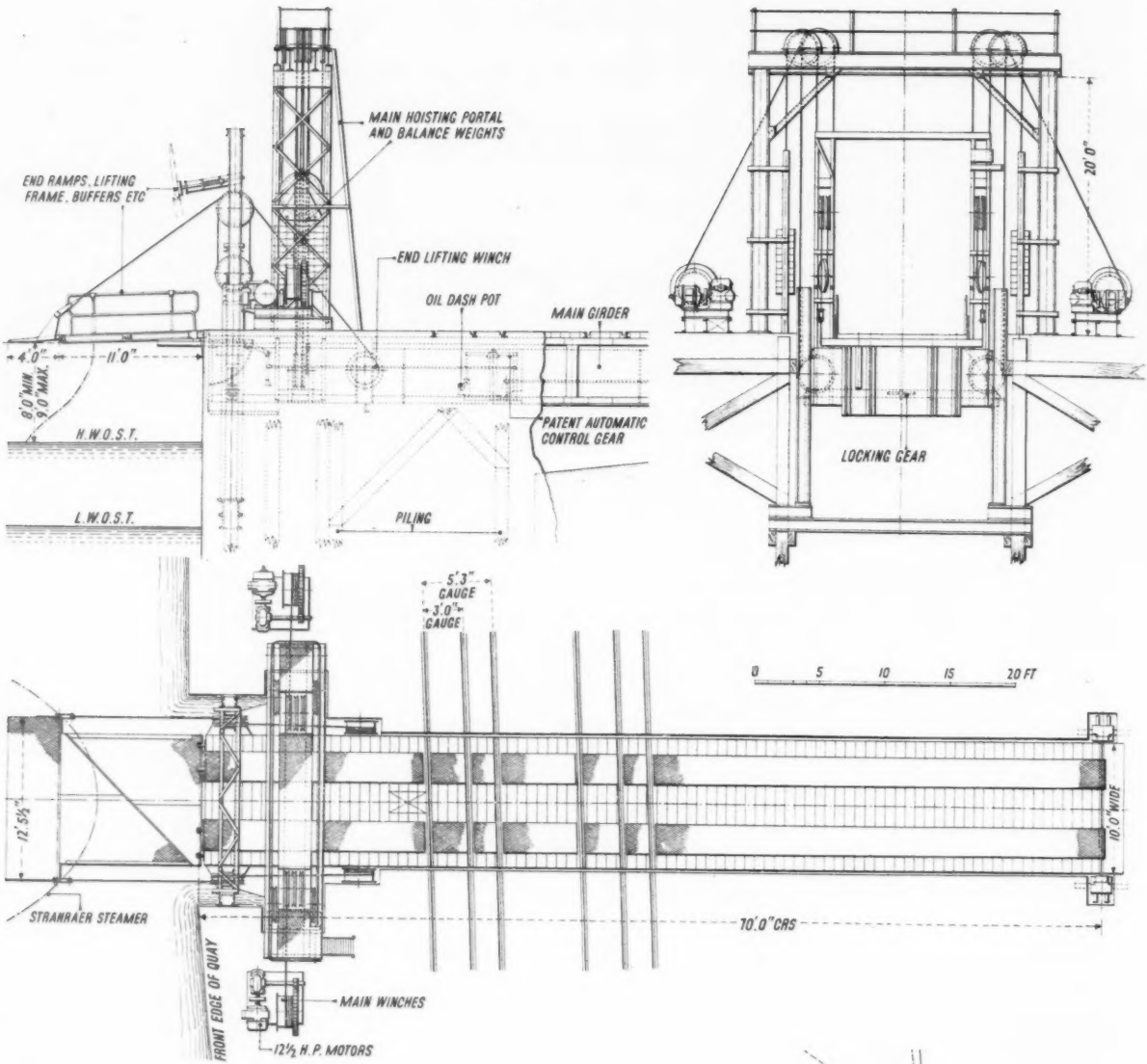
The *Princess Victoria* is the first L.M.S.R. diesel cross-channel passenger ship, and is the first large motorship in any of the fleets of the British railway companies. Propulsion is by means of twin screws driven by two sets



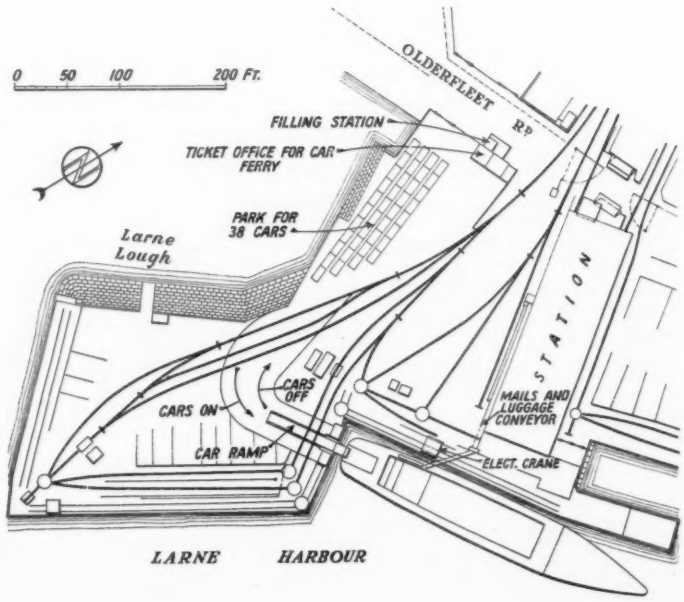
Details of movable ramp for loading and unloading cars to and from the ms. "Princess Victoria" at Stranraer



General arrangement plan of Stranraer harbour pier showing berthing arrangements and the new movable motorcar loading ramp



Above: Details of electrically-operated movable ramp at Larne for loading and unloading motorcars to and from the ms. "Princess Victoria." When not in use this ramp carries two mixed-gauge siding lines as shown



Right: General arrangement plan of Larne Harbour pier showing berthing arrangement and the new moveable motorcar loading ramp. Most of the railway lines shown are of mixed 5 ft. 3 in. and 3 ft. gauge

The motorcar stowing arrangements on lower deck of the ms. "Princess Victoria." Two car turntables are provided on this deck, and the cars are lashed down by steel hawsers secured to the floor

of directly-reversible, single-acting, two-stroke, solid injection Sulzer engines. The vessel, which was built by Wm. Denny & Bros. Ltd., of Dumbarton, to the specification of Captain J. W. Harris, R.N.R., the L.M.S.R. Marine Manager, has the following principal dimensions :—

Length, b.p.	305 ft.
Breadth (moulded)	48 ft.
Depth (moulded)	16 ft. 6 in.
Speed	19 knots

The *Princess Victoria* has accommodation for approximately 1,500 passengers, and the appointments include, in the first class, a limited number of private sleeping cabins, dining saloon, smokeroom, and lounge ; and in the third class, dining saloon and lounge. Electric lighting is provided throughout and most of the auxiliary machinery units are electrically worked ; power is furnished by three diesel-driven dynamos. Mechanical systems of ventilation have been installed in all passenger and crew quarters, whilst all the latest precautions for the safety of life, including up-to-date fire-detection and fire-fighting equipment, have been adopted.

Cars coming on board at Stranraer

The services being maintained by the *Princess Victoria* are as under :—

8.5 a.m., Larne to Stranraer, Fridays and Saturdays only.
10.8 a.m., Larne to Stranraer, Fridays and Saturdays excepted.
2.50 p.m., Larne to Stranraer, Fridays and Saturdays only.
11.20 a.m., Stranraer to Larne, Fridays and Saturdays only.
7.0 p.m., Stranraer to Larne (7.20 p.m. Saturdays).

Cars for shipment by these services should be alongside at least forty minutes before the advertised time of sailing.

Previous to the introduction of the motorship *Princess Victoria* and the installation of the ramps, motorcars both at Stranraer and Larne were slung by cranes and as, even by this method, no fewer than 5,450 cars were conveyed on the route last year, there is every promise that the better facilities, adding as they do to the ease with which motorists will be able to arrange cross-channel tours, will result in an important addition to the traffic.

SWANSEA CARTAGE FLEET.—Swansea is a co-ordinated station so far as goods services are concerned, the G.W.R. having taken over the L.M.S.R. interests. The total tonnage dealt with during 1938 (including docks traffic but excluding coal) amounted to 562,977 tons forwarded and 616,339 tons received. Employed in the business of collection and delivery of goods over an area of five miles radius from the station is a cartage fleet of 92 vehicles. Of these, 40 are motor lorries, 30 are trailers, and 22 are horse-drawn vehicles. They convey a traffic of approximately 90,000 tons annually. Swansea is an important railhead distribution centre from which deliveries are effected over an area of approximately 25 miles.

THE RT TYPE BUS, LONDON TRANSPORT

A new double-deck diesel vehicle intended to be standard in London for some years to come

IN our July 14 issue, at page 46, we recorded the introduction of a new type of double-deck diesel bus designed by the London Passenger Transport Board and the Associated Equipment Co. Ltd., for London service. In planning the new vehicle, to which the type letters RT have been assigned, the designers have had in mind the production of a vehicle to set the standard for many years to come. Every worth-while feature conducive to ease of control, smoothness of running, ease of maintenance, and long life, has been considered and, if regarded as an asset, incorporated in the new design. The general layout is orthodox, since London Transport engineers believe that a rear entrance prevents a different position of the engine being satisfactory. In consequence, the engine, the gearbox, and the rear axle are in the customary positions.

A noteworthy change has been made in the frontal design, with the aim of improving the visibility of the driver. During recent years there has been a tendency towards higher radiators and bonnets, which have curtailed the driver's vision from the near side. The board has gone the other way on its new flat-engined coaches in providing excellent near side vision, and the RT is very similar in this respect. The radiator has been dropped sufficiently to allow a man of average height to look into the radiator filler, and the bonnet also is lower than usual. The steering column has been moved forwards and the driver is seated both higher and more forward, so that now he looks down to the ground at a far steeper angle than formerly. The ventilation is assisted by large front ventilators, one above the windscreen of the cabs and one in the scuttle; by sliding glasses in the nearside cab emergency window; and by the customary provision of a sliding door on the offside.

Compressed-air operation of both the braking and gear-changing controls lessens the usual physical effort required. A gear control on the steering column, working in a gate after the manner of the system now common on American motorcars, preselects the required gear on the self-changing gearbox, in conjunction with which a fluid flywheel is used. A direct-injection diesel engine is employed and as large a bore as is permissible without encroaching on body space has been adopted. With a 120 mm. bore cylinder adequate power for present and possible future requirements is available and still a considerable reserve remains before the emission of smoke. No auxiliaries other than the water pump and fuel pump are carried on the engine. A cardan shaft driven from the timing gear runs alongside the offside of the engine and drives the dynamo, the air compressor, and the fuel pump, which are arranged to be accessible under the gangway.

The body construction is of a new type in double-deck construction, although it is used extensively on the board's single-deck vehicles. All waist rails, etc., are built up from standardised metal sections and, generally, the attributes of wood and metal have been carefully intermingled, particularly in view of London Transport service conditions and maintenance experience. The design promotes the most rapid repair after accident and enables work to be localised. The body pillars are set further apart than in previous practice, with resultant improved visibility. Half drop windows with winding control are used on both decks. The board's design of metal-framed chair, with Dunlopillo fillings and moquette and leather upholstery, is standardised. The staircase has been modified to give more room and the emergency window on the upper deck has a different type of control. On the experimental vehicle RT1, seating is provided for 55 passengers (26 on the lower and 29 on the upper deck), but the standard type will accommodate 56.

Destination and number indicators have been improved by the addition of a service number above the front bulkhead window as well as that in the roof canopy, and of a large clear route number indication on the near side in the rear body pillar, a similar indication on the opposite side, and the removal of the rear number box to the roof canopy. In all, five indications of route number, three of route traversed, and two of destination are given.

London Transport Country Services

The development and organisation of a department which maintains 30 garages, and operates 214 bus and 34 coach services in an area of some 1,295 square miles

THROUGHOUT the world, and in all branches of transport, there is a tendency towards grouping. Sometimes this is the result of voluntary action and can take place at a time and in a manner suitable to the parties, but often such grouping springs from Government action and is required to take place on an "appointed day." The road services of the London Passenger Transport Board provide examples of both types of procedure, for the Central Bus Section is mainly the result of voluntary amalgamations under the *ægis* of the old London General Omnibus Co. Ltd., whereas the Country Bus and Coach Section in its present size and form is largely a product of grouping under the London Passenger Transport Act of 1933.

What is known as the Central Bus Section operates a large fleet of buses in red livery, almost entirely inside the boundary of the Metropolitan Police District, and is the direct successor to the old L.G.O.C. That organisation, although without statutory powers (other than for a pooling of receipts with the tube and District railways), was the result of a voluntary merger in 1908 of the principal motorbus companies serving the Metropolis. Subsequent absorptions, and working agreements with Thomas Tilling Limited, Tilling & British Automobile Traction Limited, and the Tramways (M.E.T.) Omnibus Co. Ltd., left the L.G.O.C. immediately after the war in complete control of the London motorbus services, and its organisation was planned and developed on this basis. The position was vulnerable, as the law at that time did not discourage newcomers, and from 1922 onwards large numbers of small independent operators entered the field. Subsequent restrictive legislation deterred fresh entrants, and many of the "independent" proprietors then formed themselves into larger units. Most of these afterwards passed into the hands of the L.G.O.C., which thus possessed, at the time the London Passenger Transport Board was formed, an organisation with a digestive capacity easily adequate to absorb without modification the 51 independent operators with 268 buses that were transferred compulsorily. None was taken over on July 1, 1933, when London Transport began its operating life, and the transfers actually became effective on various dates between November 1, 1933, and December 5, 1934.

Between the boundary of the Metropolitan Police District and the limit of the London Passenger Transport Board's area are some 1,295 square miles, operated almost entirely by Country Bus services. The full title of the department is "Country Buses and Coaches," as it is also responsible for the Green Line coach services, which cover practically the whole of the board's area but suffer from the legal disability of being permitted to pick up passengers within the Metropolitan Police Area at certain stops only. This department of the board's activities—unlike the Central Bus Section—provides an example of grouping rather than absorption. In all, the Country Bus and Coach Section now operates 214 bus services and 34 coach services, and maintains 30 garages. The section employs a staff of 4,574, excluding the engineering staff. Comparatively few of these bus services had been organised by the L.G.O.C., although some were under the same financial control when London Transport was formed.

Shortly after the war the L.G.O.C. adopted the policy of arranging for its bus services on the outer edge of its area (and in the main outside the Metropolitan Police District) to be maintained on its behalf by other companies with which it had working agreements. The two most important of these operating agreements came into force in the summer of 1921; one was with the East Surrey Traction Co. Ltd. and was dated July 7, 1921, and the other was with the National Omnibus & Transport Co. Ltd. and was dated July 21, 1921. The latter operating agreement actually took effect from June 1 of that year when a group of L.G.O.C. services in the neighbourhood of Watford (taken over in July, 1914, by the L.G.O.C. from the old London & North Western Railway) was transferred to the National company, which worked them thereafter as operating agent. This arrangement was afterwards extended considerably, and at the beginning of 1924 applied to 64 vehicles. When the L.G.O.C. bought the Hertford & District Motor Omnibus Services from Harvey & Burrows in June, 1924, this business was also turned over for National working. Further depots in the north and east of the London area were opened from time to time and the total of vehicles under the plan increased to 119 at the beginning of 1927 and 139 at the beginning of 1930.

A smaller, but generally similar, arrangement was made in respect of the western outskirts of London with the Thames Valley Traction Co. Ltd. under an agreement of April 20, 1922. On June 14 of that year two L.G.O.C.

The first motor bus to ply between Boxmoor station and Watford. This route was opened by the old L.N.W.R. on September 1, 1913

The old garage at Amersham of the Amersham & District Motor Bus & Haulage Co. Ltd.

services based on Uxbridge were handed over for Thames Valley operation, and subsequently further routes inaugurated under the scheme. At the beginning of January, 1929, the L.G.O.C. resumed its own operation of the Uxbridge group of services, but on June 1, 1930, again transferred one route (Uxbridge to West Wycombe) to the operating agency of another company, this time the Amersham & District Motor Bus & Haulage Co. Ltd. That company had been formed just after the war, and was developed as a purely local enterprise until 1929, when the L.G.O.C. arranged to take a large financial interest in it. Accordingly, the whole of the 6 per cent. cumulative preference shares and half of the issued ordinary shares were allotted to nominees of the L.G.O.C. on August 26, 1929; but this did not amount to control.

The East Surrey Traction Co. Ltd., with headquarters at Reigate, was actually the organisation which provided the basis for the present Country Bus and Coach Section. Until 1929 it continued to be an independent company, but that portion of its business which was conducted on behalf of the L.G.O.C. assumed ever-increasing importance, and in June, 1929, the L.G.O.C. acquired a controlling interest in its shares. Already (in February, 1928) the East Surrey had secured control of Autocar Services Limited, of Tunbridge Wells, and in August, 1929, the L.G.O.C. rounded off the position by buying the outstanding Autocar shares.

By 1931 preliminary plans were formed for re-organising these various country service activities of the L.G.O.C. in expectation of the early passage through Parliament of the London Passenger Transport Bill. On April 1, 1931, two important L.G.O.C. routes (Morden Station to Dorking, and Erith to Dartford) were transferred to East Surrey operation, and in December of the same year the Slough—Beaconsfield service was acquired from the Great Western Railway after having been maintained with railway buses since March 1, 1904. Then on January 25, 1932, the name of the East Surrey Traction Co. Ltd. was changed to London General Country Services Limited and steps were taken to terminate the arrangement in North London with the National Omnibus & Transport Co. Ltd. The National routes and rolling stock (then approximately 150 vehicles) passed into the hands of L.G.C.S. on March 1, 1932. The G.W.R. road motor services at Slough became L.G.C.S. property on April 10 of the same year.

By May, 1932, the L.G.C.S. fleet totalled 402, of which 200 were double deck buses, 164 single deck buses, and 38 motor coaches. In addition the L.G.C.S. operated in a managerial capacity a fleet of 348 coaches on behalf

This view of the Amersham garage built by London Transport shows the simplicity of the main building

of Green Line Coaches Limited, and a fleet of 59 buses and 27 coaches on behalf of Autocar Services Limited. It will be recalled, however, that the Autocar fleet, which operated outside what became the London Passenger Transport Area, passed into the hands of the Southern Railway associate—the Maidstone & District Motor Services Limited—at the time London Transport began its operating life.

Decentralisation and District Headquarters

With the formation of the board in 1933 and the acquisition of 72 independent undertakings operating 284 routes, the existing subsidiary company, London General Country Services Limited, became the nucleus around which the present Country Bus and Coach Section was developed. At that time the services and the fares of the various acquired businesses were not co-ordinated; in many areas the services were inadequate; and there was a quantity of unsatisfactory rolling stock on the roads. Owing to operating and geographical conditions, and to some extent to the type of traffic to be carried, there are points of difference between the Central and Country Services which are reflected in the substantial degree of decentralisation of the latter. The section is under the direction of the General Manager (Country Buses and Coaches), assisted by the operating superintendent and the indoor superintendent. The operating superintendent's office is represented by operating and traffic, staff and licensing sections, with a district superintendent in charge of each of eight areas. The indoor superintendent's office deals with the preparation of time and duty schedules and vehicle allocation. So far as licensing is concerned, if the route is inside the board's Special Area, where it possesses monopolistic powers, application for a route approval is made to the Metropolitan Traffic Commissioner; but, if the route is wholly or partly outside the Special Area, application must be made to the appropriate traffic commissioners for a road service licence in exactly the same way as any other operator.

The organisation of the Country Bus and Coach Section is designed to establish close touch between London Transport, the local authorities, the police, Chambers of Commerce, local transport committees, and other representatives of travellers. To this end the services are controlled from seven district centres with offices at Amersham, Watford, Hertford, and Romford in the north; and Windsor, Reigate, and Northfleet in the south. In addition, there is a central district with offices at Leicester Square concerned solely with Green Line coaches. Local events are provided for, and special arrangements may be made with the district superintendents to advertise them in buses. A brief account of the Country Services

View from the London Road of the main entrance to Northfleet garage. This is one of the seven district headquarters in the Country Area; it was opened on July 7, 1937, and was described and illustrated in our issue of August 27 of that year

organisation adopted by London Transport was included in our issue of October 25, 1935, when descriptions were given of four typical new garages in the area north of the Thames. South of the Thames, at Northfleet, is the most recently opened district headquarters and this we described in our issue of August 27, 1937. The largest of the Country Services garages is that at Reigate (the old headquarters of the East Surrey Traction Co. Ltd.) which has accommodation for 130 vehicles; that at Windsor runs it very close with a capacity for 120 units.

To each of the seven country districts there is allocated as nearly as possible an equivalent number of staff and vehicles. Each area is in the charge of a district superintendent who reports direct to the operating superintendent, and is responsible for the operation of the services, the supervision of the traffic work at the garages and the road and depot staff, and reporting upon the suitability of the services. In each district there is a district inspector stationed at every garage who reports to the district superintendent, and is responsible for the regulation and

One of the mobile inspectors, provided with motor cycles to enable larger areas to be covered than is possible by bus and coach

supervision of traffic in the adjacent area; the control of drivers, conductors, inspectors, and vehicles on the road; arrangements for special traffic; and reporting upon traffic changes and development. Ranking between the district inspectors and the drivers and conductors are the inspecting staff who are responsible, subject to supervision, for time-keeping, checking of conductors' way-bills and passengers' tickets, and taking such action as may be necessary to maintain the timetabled services.

In addition to the ordinary inspectors, there are mobile inspectors provided with motor cycles to enable them to cover greater areas and give wider supervision than is possible by bus and coach travel. A senior depot clerk at every garage is responsible to the district superintendent for the administration of the garage office, including the preparation of conductors' ticket boxes, ticket punches and waybills, the receipt of conductors' traffic takings, the payment of wages to traffic and engineering staff, and the preparation of reports and traffic returns.

When London Transport undertook the organisation of this department of its activities, the provision of adequate garage accommodation was an important consideration. The existing garages at Hatfield, Luton, Swanley, High Wycombe, Leatherhead, and Windsor were reconstructed and new garages have been built at Addlestone, Amersham, Epping, Hemel Hempstead, Grays, Hertford, Northfleet, Staines, St. Albans, and Tring, whilst the old garages which were too small or inconveniently situated were closed. Bus and coach stations have been developed at Sevenoaks and Tunbridge Wells. A particular feature has been made of the fact that every new building has been individually designed and constructed to be worthy of its site and its district.

The rolling stock has been improved by the withdrawal of old models and by the introduction of 330 new buses and 180 new coaches. The whole fleet of buses and coaches is in a distinctive green livery; the buses bear the fleet name "London Transport" and the coaches "Green Line." On the coaches the comfort of passengers has been increased by the installation of heating and improved ventilation. Moreover, in arranging for the provision of suitable vehicles, the physical features of the route are an important consideration. On very narrow and tortuous roads small 20-seat vehicles with short wheel bases are used. Low bridges necessitate the operation of either single-deck buses or specially constructed low height double-deck buses. Where physical conditions permit and the traffic is moderate but likely to grow, a double-deck vehicle is used, as the cost of operation is little higher than that of a single-deck bus, while the additional seating capacity during peak periods is invaluable. In areas where the traffic is sparse, such as agricultural districts, a 20-seater one-man-operated bus is employed.

Lack of co-ordination between the various acquired interests necessitated a comprehensive scheme for the efficient and economical rearrangement of the services before the Country Area was consolidated. After thorough investigation, co-ordinated traffic schemes were introduced in the Windsor, Slough, St. Albans, Watford, Amersham, High Wycombe, Gravesend, and Hertford districts. In every case they were designed to supply better regulated headways and more seating accommodation during the peak periods.

Despite its wide powers, the London Passenger Transport Board is subject to a number of restrictions on its activities, and the Green Line Coach services, for example, continue to suffer from the legal disability of being permitted to pick up passengers only at certain stops within the Metropolitan Police Area, as already mentioned. Even with that handicap, they are attracting large numbers of passengers. The institution of 6d. and 9d. fares outside the central area has proved to be popular, and in some parts where traffic is light it has been found possible to eliminate local bus services by introducing local fares on the Green Line coaches covering the sections of road. All stopping places for coaches are now properly marked—a greatly appreciated convenience. The marking of stopping places for Country Buses is now well in hand and large numbers of posts and stop plates have been fixed.

In the organisation the staff has not been forgotten and their conditions of service and wages have been substantially bettered. Drivers are normally recruited from men who have served as conductors; apart from providing a means of promotion, this system has the advantage that the men who become drivers are acquainted with the routes and the requirements of passengers. Special inspectors termed inspectors (mechanical) are engaged for the purpose of training conductors as drivers and also for testing the ability of existing drivers. During the past two years 227 conductors have been trained and appointed as drivers. Conductors are trained at lectures given at particular garages in the districts and also by practical tuition in service under the guidance of a specially-selected conductor.

LEYLAND BUSES IN MUNICIPAL SERVICE.—Some interesting figures relating to municipal passenger transport in Great Britain are contained in a recent announcement of Leyland Motors Limited, in which it is stated that well over one-third, or 38·92 per cent., of the total number of motorbuses in British municipal service are Leylands. Of the British municipalities operating motorbuses and trolleybuses 76 per cent. use Leylands; and of the 82 municipalities who work diesel-engined buses, 60 operate Leylands. It is claimed, moreover, that at least 39 per cent. of the diesel engines in municipal service are of Leyland manufacture.

A Diesel-Engined Shunting Tractor

Low fuel-consumption, reduced maintenance and operating costs, and extreme mobility are its principal features

AS already pointed out by Mr. T. W. Royle in his paper "Marshalling Yard Modernisation" (reported in the March 24 issue of THE RAILWAY GAZETTE), shunting tractors are frequently used for moving and positioning wagons in the older type of yard, where space is limited, where sidings consist of short spurs, and where fairly constant attention is needed for moving small numbers of wagons. For such light duties it is more economical to move wagons in this way than by using locomotives with a capacity greater than necessary, while in many instances it is cheaper to employ tractors than horses. There are also the added advantages of rapid movement from one part of the yard to another, ability to handle both rail-borne and road-borne traffic when necessary, and the fact that tractors require only one man, plus an attendant to look after coupling of wagons, turn points, apply hand brakes and so on. Hitherto, petrol engines have served almost exclusively as the means of propulsion, although more recently consideration has been given to the development of a suitable power unit consuming diesel fuel oil, and in this connection we illustrate the latest type of shunting tractor, No. 27 P.S., manufactured by the Mercury Truck & Tractor Co. Ltd.

This tractor, which is of exceptionally strong construction, has handled with ease 15 to 20 railway wagons, totalling over 200 tons gross weight. The total weight of the vehicle is 3 tons 3 cwt., with room for extra ballast, and the driver's seat is mounted over a 14-cwt. casting giving the required weight over the rear wheels. With an overall length and width of 10 ft. 9 in. and 5 ft. 3 in. respectively the tractor has a turning radius of 12 ft.; its wheel track is 4 ft. 6 in. and wheelbase 4 ft. Wheels are of disc pattern, running on Timken roller bearings and fitted with Trakgrip pneumatic tyres with dimensions of 27 in. by 6 in. (front) and 10·5 in. by 13 in. (rear). Girling brakes, operated by hand and foot, are used on all four wheels. The shunting and back plates consist of 0·5 in. boiler plates, 5 ft. 3 in. wide, bolted to the frame and strongly stayed. When wagons are being propelled, the front or shunting plate exerts pressure against one of the buffers, while for haulage purposes the drawbar on the back plate comes into action; the latter is a strong fitting which gives three positions for attaching a tow bar or chain.

The motive power is provided by a four-cylinder Perkins Aeroflow Leopard II diesel engine, 105 mm. bore by 127 mm. stroke, swept volume 4·4 litres, 27·34 h.p. (R.A.C. rating); it has a very high torque at low speeds and is governed to give 24 b.h.p. at 800 r.p.m. and 46 b.h.p. at 1,500 r.p.m. This engine is, moreover, extremely economical in use, having a fuel consumption of approximately 2 gallons a day, which at the current price of diesel fuel-oil works out at less than a shilling, largely by reason by the fact that no tax is paid when diesel oil is used on shunting tractors. The engine is fitted with a C.A.V.-Bosch pump, two fuel filters, oil bath, and air filter. The gearbox is a heavy type with four speeds forward and one reverse, the ratios of which are: top, direct; 3rd. 2·4 to 1; 2nd 4·0 to 1; 1st 7·0 to 1; reverse, 10·4 to 1; back axle, 12 to 1; the top speed is 12 m.p.h. The clutch is a Borg and Beck, with dry plate, and transmission is by Layrub propeller shaft to a worm drive live axle, which is specially built for use on this tractor and includes a robust differential. Cooling is by water pump and fan, combined with a special large gilled tube radiator. The fuel tank (pressure fed) has a capacity of 11 gal. Hand starting is fitted as standard, but a self-starter can be installed as a supplementary feature.

It is claimed that the all-in costs of operating a Mercury diesel shunting tractor are roughly £600 a year less than those incurred with a steam shunting locomotive, and an additional factor in favour of diesel propulsion is that for intermittent shunting, the engine can be started and warmed up in less than 2 min. and does not require attention or fuel when idle, whereas with a locomotive it is essential to maintain steam all day, necessitating both labour and fuel.

Overseas Notes

Motor Vehicles in Australia

According to the *Commonwealth Statistician* the number of motor vehicles registered in Australia at September 30, 1938, was 866,190; this figure includes 537,796 motorcars, 248,951 commercial vehicles and 79,443 motor-cycles, and compares with a total of 791,497 vehicles in June, 1937.

New Zealand Buses on Private Hire

During the past few years increasing numbers of persons have had on private hire (or charter, as it is known in New Zealand) the motorbuses of the New Zealand Railways Administration. Last year, on no fewer than 5,750 occasions, charter buses provided transport for special events, such as picnics, sports, dances, and club meetings.

Trolleybuses in Moscow

It is reported that, at the end of 1938, there were 1,000 trolleybuses working over approximately 200 miles of route in Moscow. Most of these are stated to be four-wheel single-deck vehicles seating 34 and allowing for 16 standing, but a few double-deckers, it is understood, were introduced towards the end of 1938. During last year, also, freight-carrying trolleybuses were put to work, operating only at night. The first trolleybus in Moscow began to run in October, 1935.

Estonian Road Transport

There were 119 rural bus lines operating in Estonia during the summer in 1937-38, and 103 in winter, according to the Report on Economic and Commercial Conditions in Estonia, published by the Department of Overseas Trade (H.M. Stationery Office, 9d. net). The total length of bus lines was 5,805 km. (3,607 miles). The number of passengers carried had increased from 695,000 in 1933-34, to 3,062,000 in 1937-38, and the freight from 1,600 tons to 6,500 tons in the same period. In 1938 there were 2,694 passenger cars, 2,050 lorries, 248 buses, and 2,085 motor-cycles.

Railway-Owned Road Transport in Sweden

The total length of road motor services run by railways in Sweden amounted to 19,414 km. (12,060 miles) at the end of 1938, an increase of over 21 per cent. in one year, according to a recently-issued report by the Statistical Department of the Swedish State Railways. The lines owned by the private railways have a total length of 14,945 km. (9,287 miles), and those of the State Railways 4,469 km. (2,777 miles). Most of these are passenger bus routes. The distance run by these buses totalled 51,600,000 km. (32,063,000 miles), while freight trucks covered 2,300,000 km. (1,429,000 miles). At the end of 1938 the total of vehicles comprised 1,284 buses and cars with nearly 39,000 seats and 266 freight trucks. The railways own about one-quarter of all buses in Sweden. The income from the railway-controlled road transport amounted to 15,120,000 kr. (£779,380) during 1938, and expenditure amounted to 11,820,000 kr. (£609,278). Capital invested in this road transport amounted at the end of the last year to about 21,000,000 kr. (£1,083,000).

City Transport Policy in New South Wales

At the present time the department of the Commissioner for Road Transport and Tramways, New South Wales, is working four forms of transport, namely, tramcars, petrol buses, diesel buses and trolleybuses, and in a recent statement the Commissioner, Mr. C. N. Neale, said that it was not proposed to construct any more tramcars. He pointed out that the lateral range of a trolleybus is 12 ft. on each side of the overhead wire, but in practice it was extremely difficult to attain this, as the driver was required to have his "physical" eye on the road and his "mental" eye on the overhead wire. The cost of operation of a trolleybus, he said, was much greater than that of either a petrol bus or a diesel bus. His experience was that the diesel bus was the cheapest vehicle to operate, and was limited in its scope only by absence of suitable roads. It was hoped in the near future to substitute diesel for petrol engines and to operate the whole of the departmental fleet with diesel buses. The number of motor vehicles registered at the end of February, 1939, showed 667 buses in Sydney and 64 buses in Newcastle. The engineering side of the bus section of Mr. Neale's department was responsible for the mechanical fitness, safety, and general condition of 354 buses, comprising 113 single-deck and 241 double-deck. The last-named figure was made up of 205 Hybridge type with a total height of 14 ft. 3 in., and 36 Lobridge type with a total height of 13 ft.; the need for the latter type of vehicle, which had a sunken gangway on one side of the top deck and cross seats for four passengers, was due to the presence of one or two bridges under which there was not sufficient clearance for the Hybridge type of bus. So far as motive power was concerned, the fleet included 28 single-deck and 19 double-deck petrol-driven vehicles. This total of 47 was but 14 per cent. of the total number. The department's policy was to replace petrol-driven buses as soon as possible, and 85 more diesels will have been added to the fleet by the end of September, 1939.

Trolleybuses in Switzerland

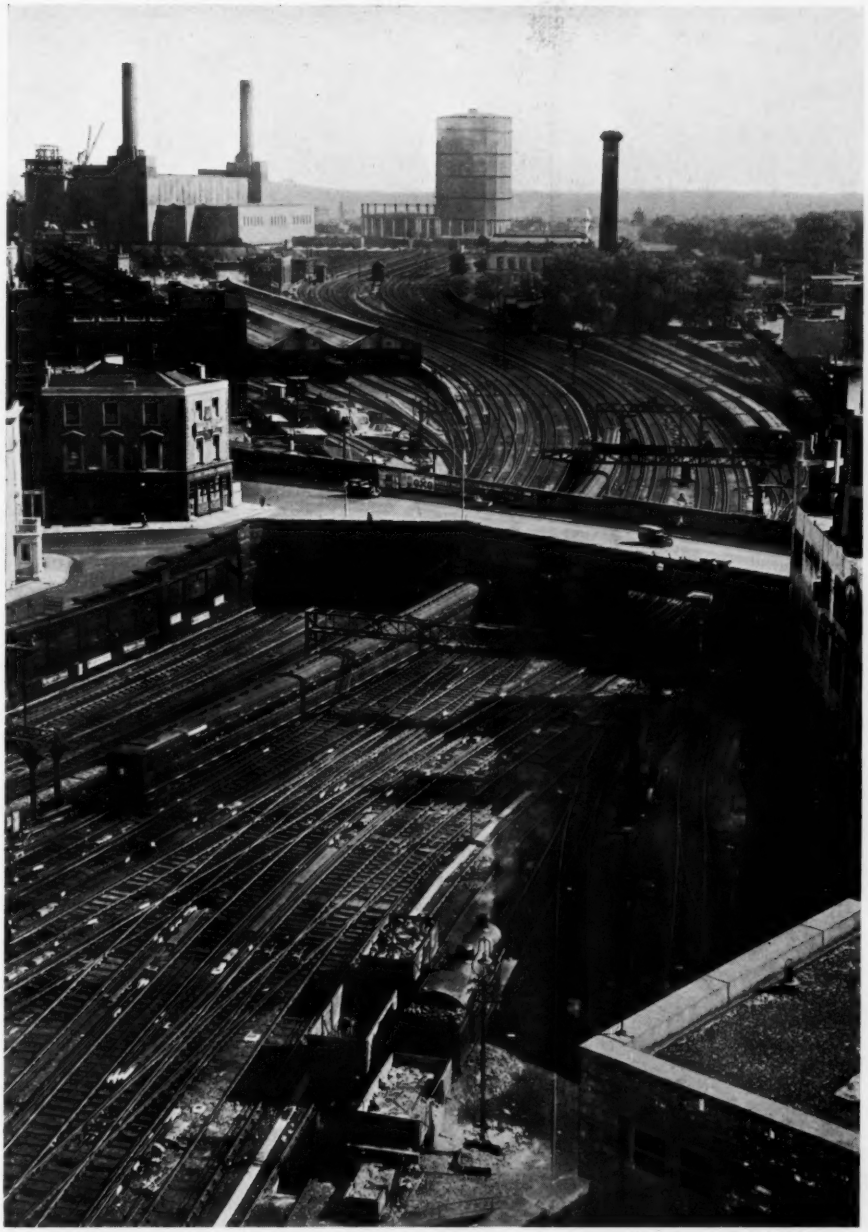
Lausanne adopted trolleybuses as long ago as November 1, 1932, when it opened a route approximately one mile long between the Central railway station and the port of Ouchy. This route is steeply graded throughout its length, with a maximum of 1 in 11¾. As the result of experience gained with this line, the Lausanne Tramways administration decided to extend the use of trolleybuses, partly on new suburban sections, and partly in replacement of tramways. Brown Boveri & Company, of Baden, Switzerland, supplied the original electrical equipment. Last year 32 further trolleybuses, also with Brown Boveri equipment, were placed in service. The attractions of regenerative braking are particularly strong in this hilly neighbourhood.

During 1938 the Winterthur Tramways undertaking opened its first trolleybus line on the 3-km. section between the railway station and Wülflingen. Four trolleybuses with Brown Boveri electrical equipment are used. They are four-wheel single-deck vehicles seating 26 passengers and providing for 24 standing.

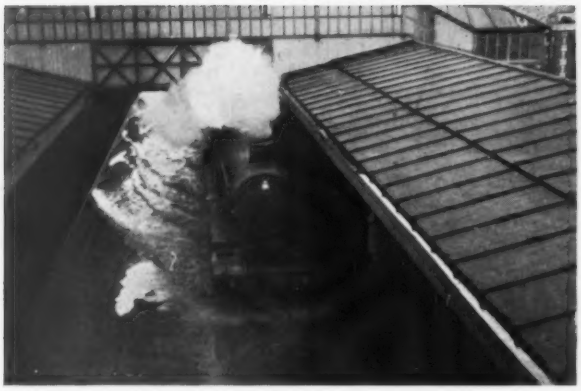
Berlin-Munich Long-Distance Bus Service

The German State Railway has just opened a bus service between Berlin and Munich, a distance of about 600 km. (373 miles); the longest such service run by this administration hitherto has been only half that distance. The bus is a diesel-engined two-unit vehicle, built by the Gaubschat works in Neukölln, Berlin, with the engine-driven portion coupled by special all-wheel steering couplings and corridor communication with the trailer coach, which, even on quite sharp curves, follows the front vehicle extremely closely. The overall length is 21 m. (68 ft. 11 in.) and the smallest turning radius is 9·5 m. (31 ft. 2 in.). High speeds are possible without any danger of the trailer shifting or swinging out of course. Great care has been given to seating comfort and to the provision of windows giving an excellent look-out all round. The diesel engine is of 150 h.p. Rail traffic is said to have grown so much between Berlin and Munich of late that the bus service is looked on as a welcome, though small, relief service. This "bus-train" holds 78 persons, but 17 additional seats can be arranged for in an emergency. At present it runs once a week only, leaving Berlin, Anhalt station, on Saturday mornings at 7.30 a.m., reaching Nuremberg at 3.30 p.m., and Munich (Starnberg station) at 6.45 p.m., with connection by train thence to the Tyrol. There is also a stop of 45 min. at Hermsdorf, in one of the most beautiful parts of Thüringen. The return service leaves Munich on Sundays at 7.30 a.m., reaching Nuremberg at 10.20 a.m., and Berlin at 6.55 p.m. Fares are noticeably under the railway rates; Berlin to Nuremberg costs 16 RM. single, and to Munich the fare is 18·7 RM. Two-monthly returns are 25·6 and 30 RM respectively, about a third under the train fare. From Munich passengers can use the bus route to Tegernsee, Fischhausen, Berchtesgaden, and Salzburg, forming a bus connection from Stettin to the Alps. It is intended, in due course, to increase the service to several times weekly.

Aerial View of Approach Lines to Victoria, Southern Railway



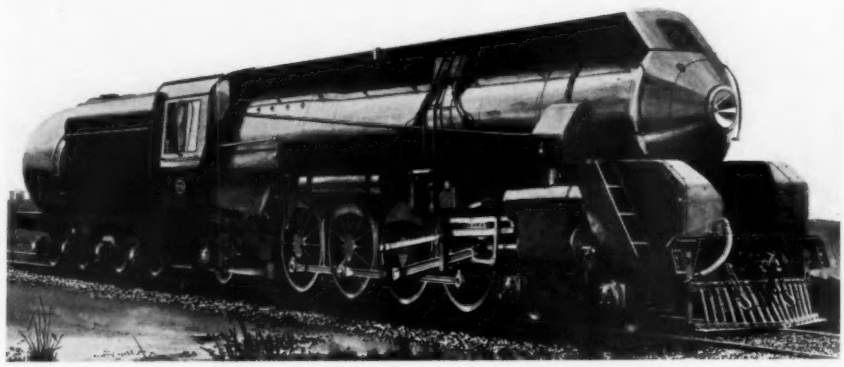
View taken from the tower of the new Imperial Airways building looking southwards at the 1 in 64 incline from Victoria terminus up to Grosvenor Road bridge over the River Thames. In the foreground is Ebury Bridge with the carriage sidings of the Eastern and Central sections respectively, immediately behind, to left and right of the main lines. Beyond is the Chelsea sewage pumping station and its conspicuous smokestack and in the background (on the further side of the river) are the Battersea power station, now in course of enlargement, and the Battersea gasometers. The new Imperial Airways building itself was illustrated on page 219 of our issue of February 10 last

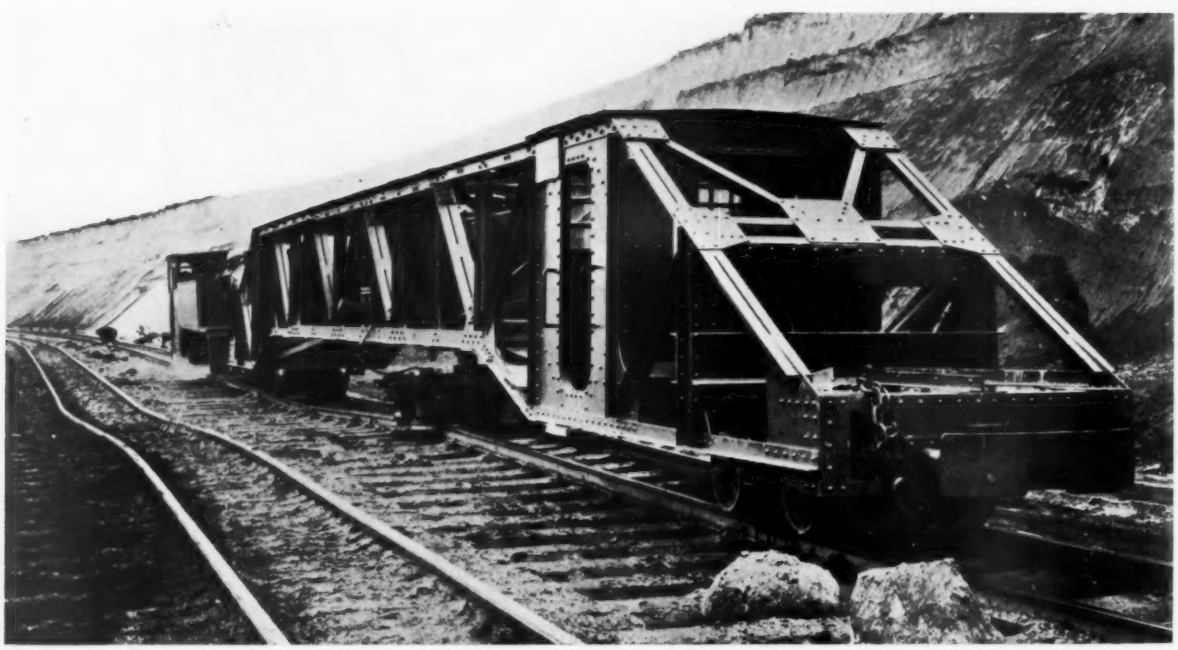


Two snapshots of Teignmouth station, G.W.R., after the cloudburst over the town last Friday. The train is a slow from Plymouth to Exeter

New streamlined 4-8-2 for New Zealand

The remarkable feature of the illustration on the right is that it is not a reproduction of an original photograph but of a drawing, the type of engine depicted being still under construction by the North British Locomotive Co. Ltd. The drawing was made in New Zealand and the photographic reproduction was received by this mail from our correspondent in that Dominion. These 4-8-2s, which will be known as the "J" class (N.Z.G.R.), were referred to on page 1013 in our issue of June 23. The draftsman is to be congratulated on the detail and shading, particularly of the buffer beam, cattle guard, motion, and wheels





A track slewer performing the combined operations of lifting and slewing the line upon which it is operating. The power unit is built into one end of the vehicle and is a diesel-electric set. The machine has been developed by the Allgemeine Transportanlagen Gesellschaft

RAILWAY NEWS SECTION

PERSONAL

Mr. J. W. A. Kislingbury, who retired on July 23 from the position of Divisional Locomotive Superintendent, Old Oak Common, G.W.R., entered the service of the Great Western Railway in 1894 as a premium apprentice in the Locomotive Department, Bristol. In 1897 he was transferred to Swindon, and in July, 1899, to the Drawing Office at Swindon, in which, in December, 1899, he was appointed a draughtsman. He remained until 1909 at Swindon, where he became successively Inspector

Mr. J. W. A. Kislingbury

Who has retired from the position of Divisional Locomotive Superintendent, Old Oak Common, G.W.R.

of Materials, in 1902; Draughtsman in 1906; and Assistant Divisional Locomotive Superintendent, in 1907. He was appointed in 1909 Assistant Divisional Superintendent, London, whence he went in 1913 to a similar position at Wolverhampton. In 1919 Mr. Kislingbury went to Neath as Divisional Locomotive Superintendent. In 1922 he was appointed Divisional Locomotive Superintendent, Old Oak Common, the position from which he has just retired.

Don Gregorio Perez Conesa has been appointed by the Spanish Government, under a Decree dated June 15, to the post of Chief of the National Railway Service.

Mr. Bruce K. Wimer has been appointed to take charge of the Industrial Department of the Pennsylvania Railroad, in succession to the late Mr. George E. Fetterman.

Mr. Robert Bernays, M.P., Parliamentary Secretary to the Ministry of Transport, has appointed Mr. H. W. Butcher, M.P., as his Parliamentary Private Secretary and Mr. R. R. Goodison to be his Private Secretary.

Sir Edward Beatty, Chairman and President of the Canadian Pacific Railway, who has been staying at the Dorchester Hotel while on a short visit to this country, left Southampton on July 22 in the *Empress of Britain* for Quebec.

Mr. Libert J. E. A. Oury, Chairman of the Trans-Zambesia Railway Co. Ltd., and Chairman and Director of many other African companies, and whose death was recorded in our issue of May 19 last, left £32,633 so far as can at present be ascertained (£1,629 net).

We regret to announce the death on July 24 at the age of 73 of Baron Emile d'Erlanger, Chairman of the well-known private banking house of Erlangers Limited, which played a prominent part in the development of the Rhodesian Railway system. Baron Emile d'Erlanger was born in Paris in 1866. He came to England at the age of 18 to begin his financial career, and was for a time with the firm of Deloitte, Dever, Griffiths & Company. Baron Emile and his brother Baron Frederic joined the London house of Erlangers Limited, which their father had founded in 1870 as a branch of his Paris house, and he became a British subject. In 1892 Baron Emile met Cecil Rhodes and undertook to finance and build the Rhodesia railways in conjunction with Pauling & Company, which firm, under the chairmanship of Baron Emile, constructed nearly all the railway system of the British South Africa Company. Erlangers Limited also built and financed the new Cape Central Railway, the Rhodesia-Katanga Junction Railway, and the Central Africa Railway, and constructed the Port of Beira. Baron Emile d'Erlanger was on the board of the pioneer Channel Tunnel Company, and as Chairman of the present company he continually pressed the scheme upon the attention of the authorities, having a firm faith in its possibilities. He spoke English and French with equal facility, and was the author of several volumes of verse. His interests were far-reaching and he had a wide circle of friends. He was Vice-President and a member of the executive committee of the British South Africa Company, and his chairmanships included those of the Beira Railway Co. Ltd.; the Forestal Land, Timber & Railways Co. Ltd.; and the Rhodesia Railways Trust Limited.

Mr. Thomas Brewer, whose retirement on June 30 from the position of District Superintendent, Waterford, Great Southern Railways, Eire, was announced in our July 21 issue, began his railway career in 1897 as a clerk at Newbridge and eventually, in 1904, became Chief Clerk in the District Superintendent's office at Waterford. He was next appointed Stationmaster at Limerick Junction. Four years later he became Agent at Waterford, where

Mr. Thomas Brewer

Who has retired from the position of District Superintendent, Waterford, Great Southern Railways, Eire

he took over both passenger and goods duties. He was appointed District Superintendent, Waterford, in 1925.

At the annual meeting at Clacton on July 14 of the National Union of Railwaymen Mr. J. H. Potts (Dukinfield branch) was elected President, and Mr. A. Oliver (Nine Elms branch) Treasurer. Mr. Potts became President last December on the death of Mr. W. Griffiths.

We regret to record the death at the age of 73 in Buenos Aires on June 14, of Mr. Matthew Lowndes, formerly Resident Engineer of the Córdoba Central Railway. Born in Devonshire, he came to Argentina in 1889, and was at first employed on survey work for the Córdoba and North-Western Railway (since incorporated in the Central Argentine system). In 1894 he was appointed Sectional Engineer on the Córdoba Central Railway, and in 1896 was transferred to Rosario as Chief Assistant to the Resident

Engineer of the Córdoba and Rosario Railway, then under the same management as the C.C.R. From 1903 to 1916, he was employed as Sectional Engineer on the Córdoba and Rosario line, but was later transferred to Buenos Aires as Assistant to the Resident Engineer. In 1917 he was appointed Acting Resident Engineer of the Córdoba Central Railway, in which position he was shortly afterwards confirmed. He retired on pension at the end of 1931 after 37 years' service with the Córdoba Central and affiliated lines.

The following candidates in the Associate Membership Examination, 1939, of the Institute of Transport, held last April, passed Parts I and II in Class II (not Class I as was inadvertently stated in last week's issue):—

Parts I and II
Class II

Allsopp, G. W., Great Western Railway; Boswell, W. S. C., London Passenger Transport Board; Dennett, V. F., London Passenger Transport Board; Flemming, J. P., Manchester Ship Canal; Gibbs, W. A., South African Railways and Harbours; Kerr, D., London Passenger Transport Board; Quekett, D. A. F., L.M.S.R.; Sampson, J. R., L.M.S.R.; Singh, C., Kenya and Uganda Railways and Harbours.

We regret to record the death on June 26 of Mr. James A. Richardson, a Director of the Canadian Pacific Railway Company and head of the Winnipeg grain concern of James Richardson & Sons.

Mr. Brian O'Rorke, A.R.I.B.A., has been awarded the distinction of R.D.I. (Designer for Industry of the Royal Society of Arts) by the Royal Society of Arts. Mr. O'Rorke was responsible for the new schemes of colour, decoration, upholstery, and lighting incorporated in the L.M.S.R. Coronation Scot train now being exhibited at the World's Fair, New York.

Dr.-Ing. Julius Dorpmüller, German Minister of Transport and General Manager of the German State Railway, celebrated on July 24 his seventieth birthday.

Don Rafael Rubio y Martinez Corera has been appointed by the Spanish Government to the post of President of the Department of Construction and Repairs of Railway Rolling Stock, of the Ministry of Industry. Don Luis Iparraguirre de la Cueva has been appointed Secretary of the Department.

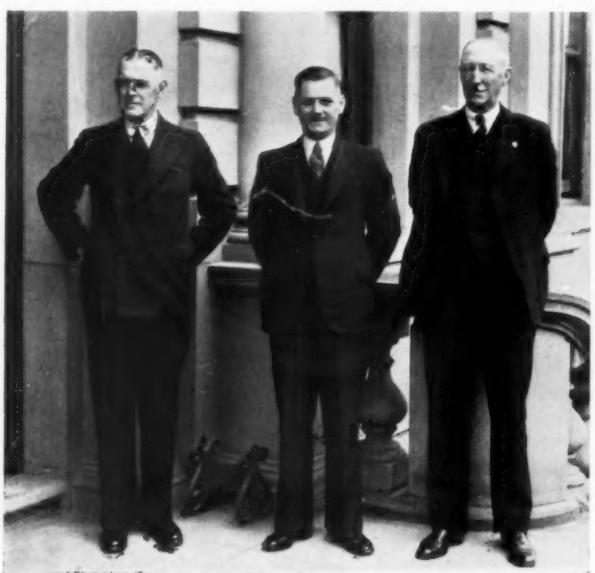
TASMANIAN TRANSPORT AUTHORITY

In accordance with the terms of the Tasmanian Transport Act, 1938, the control, management, and operation of the Tasmanian Railways were transferred from the Commissioner for Railways to a newly-constituted Transport Commission on July 1. The following appointments were then made:—

Mr. M. W. S. Wilson to be Commissioner of Transport and Chairman of the Transport Commission.

Mr. F. P. St. Hill and Colonel J. E. C. Lord to be Associate Commissioners.

Mr. A. K. Reid to be Secretary and Accountant to the commission.



"The Mercury"] [Hobart

Left to right: Mr. F. P. St. Hill, Associate Commissioner; Mr. M. W. S. Wilson, Commissioner for Transport; and Colonel J. E. C. Lord, Associate Commissioner.

The newly-appointed Tasmanian Transport Commission

Mr. C. J. Rollins to be General Manager for Railways.

Mr. H. B. Bennett confirmed as Chief Engineer for Railways, and

Mr. A. W. Newton as Administrator of Road Transport.

Mr. Wilson was formerly Administrative Assistant of the Department of Road Transport and Tramways in New South Wales.

Mr. Hill has hitherto been Commissioner for Railways in Tasmania.

Colonel Lord is Commissioner of Police in Tasmania.

Mr. Reid was formerly Research Officer of the Department of Road Transport and Tramways in Sydney.

Mr. Rollins has been Secretary for Railways, and was recently acting as Commissioner for Railways in Tasmania.

The offices of the Commission are in Argyle Street, Hobart.

From *The London Gazette* of July 21: Regular Army Supplementary Reserve of Officers, Corps of Royal Engineers, Transportation: Capt. T. B. Bunting to be Major (July 22).

We regret to record the death, on July 18, at the age of 79, of Sir Alfred Law, M.P. for the High Peak division of Derbyshire. Sir Alfred Law was Chairman of the Rochdale Canal Company, Charles Kershaw (1937) Limited, the Littleborough Gas Company, and S. S. Whaley & Company.

INDIAN RAILWAY STAFF CHANGES

Mr. A. R. A. Hare Duke has been appointed to officiate as Controller of Stores, E.I.R., as from April 7.

Mr. C. G. Graham, Deputy Chief Engineer (Maintenance), G.I.P.R., has been granted 4¼ months' leave as from May 29.

Mr. C. F. White, Deputy Chief Mechanical Engineer (Locomotive), G.I.P.R., has been granted 18¾ months' leave preparatory to retirement as from May 13.

Mr. E. L. Ensor has been confirmed as Deputy Transportation Superintendent (Telegraph), G.I.P.R.

Mr. H. W. Brodie, Overseas Passenger Manager of the Canadian Pacific Railway for the past nine years, retired under the pension regulations on June 30, and has been succeeded by his assistant, Mr. Ian Warren. Mr. Brodie was responsible for the transportation eastward across Canada during the war of 34,000 Canadian troops and 83,347 men in Coolie labour battalions.

Mr. W. F. Hulls, Stationmaster, Whittlesea, L.N.E.R., with charge of Benwick line, has been appointed Stationmaster, Bury St. Edmunds.

On July 14 it was announced that the King had approved the appointment of Dr. Edward Leslie Burgin as Minister of Supply. Dr. Burgin, formerly Minister of Transport, in which position he was succeeded by Captain Euan Wallace, the present Minister of Transport, was designated Minister of Supply last April.

Mr. E. A. Bambury, Mechanical Engineer, Bloemfontein, has been appointed Chief Superintendent (Motive Power), General Manager's Office, S.A.R. & H.

Mr. J. R. Glorney Bolton has been appointed Press Officer to Imperial Airways Limited, in succession to Mr.

Robert Brenard, who is leaving in order to specialise in aviation journalism and publicity. Mr. Bolton has served on the editorial staffs of the *Yorkshire Post*, *The Times of India*, *The Daily Mail*, and *Great Britain & the East*.

On July 1, Mr. Jean Berthelot was appointed Assistant General Manager of the French National Railways in place of M. Surleau.

Mr. John Patrick Herdman, Sion Mills, Co. Tyrone, has been co-opted a Director of the Great Northern Railway Company (Ireland) in place of the late Mr. Maxwell Scott Moore.

Captain J. R. Bulmer, Senior Captain of the L.M.S.R. fleet, retires on August 1 after 48 years at sea. He joined the Irish cross-channel service in 1900.

Mr. R. C. Vaughan, Vice-President of the Canadian National Railways, has been lent to the Canadian Government to act as Chairman of the Defence Purchasing Board during its organisation. The board will supervise Canada's arms contracts.

We regret to record the death, in Ottawa, at the age of 80, of Mr. M. J. Lambert Payne. After having served as Private Secretary to three Canadian Prime Ministers—Sir Mackenzie Bowell, Sir Charles Tupper, and Sir Wilfred Laurier—he became Controller of Railway Statistics, and held this office until his retirement.

Don Ernesto de la Gándara, Assistant Traffic Superintendent of the Madrid, Zaragoza & Alicante Railway, has been granted by General Franco the medal for long service. Señor de la Gándara has just completed sixty years of continuous service with the same company.

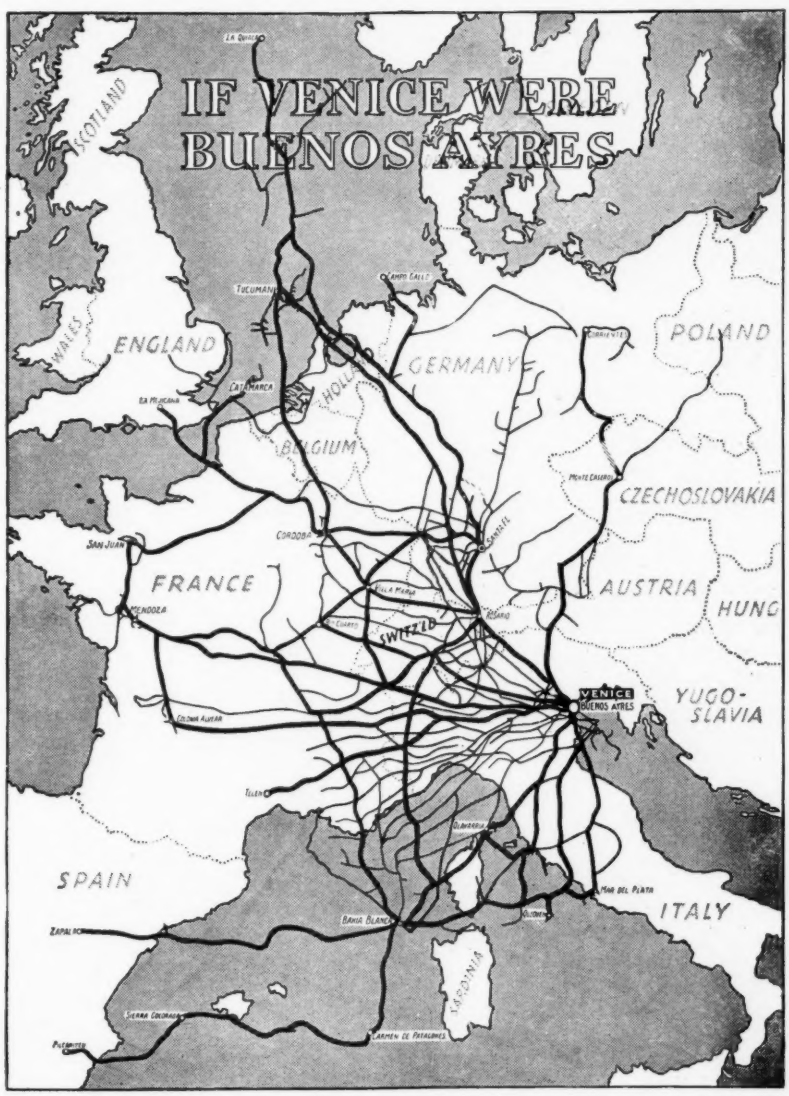
We record with regret the death, on July 14, of Mr. Ernest William Willis, Chairman and Managing Director of the Carriers Publishing Co. Ltd., proprietor of *The World's Carriers* and *Roads and Road Construction*. He helped to found our contemporary, *The World's Carriers*, in 1904 and had been Editor since 1906. He was a Member of the Institute of Transport, a Member of the Worshipful Company of Carmen, and a Fellow of the Institute of the Motor Trade. Mr. Willis was in his 65th year.

Dr. J. G. McBride, Medical Officer for the North-Eastern and Scottish areas of the L.N.E.R., and Consultant for the company, has just retired. A native of Edinburgh, he studied at Edinburgh University. After holding several house appointments in that city, he went abroad for a year and on his return in 1905 joined the former North Eastern Railway at York. He has for many years been Chairman of the Central Ambulance Committee, and was also Chairman of the North Eastern Railway Cottage Homes Fund.

Just before Dr. McBride retired, Mr. C. M. Jenkin Jones, General Manager, North Eastern Area, L.N.E.R., presented him with a gold pencil from the divisional manager's office staff at York.

"If Venice were Buenos Ayres"

A 44-page guide, published by the Argentine Chamber of Commerce in London, claims to give a complete picture of Argentina and its climatic, topographical, political, and trading conditions. Under communications there are paragraphs on the British-owned and State railways. Illustrations include the interior of a Central Argentine Railway saloon coach, the State Railways eight-storey administration building, and a transhipment point between a narrow-gauge agricultural line and a broad-gauge railway. A railway map of the country superimposed upon the map of Europe extends from a point on a line with John o' Groats in the north (La Quiaca) to a point on the same latitude as the south of Sardinia and the south-east coast of Spain (Carmen de Patagones and Pilcaniyen) in the south, and from Brittany (San Juan and Mendoza) in the west to eastern Germany (Corrientes), Venice (Buenos Aires), and Rome (Mar del Plata) in the east. The final chapter is devoted to tourist attractions. This booklet is called simply "Argentina."



A striking "comparison" map reproduced from the booklet "Argentina"

QUESTIONS IN PARLIAMENT

Dukinfield Carriage Repair Works

Mr. C. Brown (Mansfield—Lab.), on July 20, asked the Minister of Labour whether his attention had been drawn to the fact that as a result of the decision of the L.N.E.R. to transfer certain carriage repair work from Dukinfield, the number of unemployed in that area had been considerably increased; and whether he could take any action to mitigate these circumstances.

Mr. Ernest Brown (Minister of Labour): I am aware of the decision of the railway company and I understand that an opportunity of employment in York will be offered to certain of the workers involved. My department will make every effort to find suitable alternative employment for the workers who are displaced as a result of the transfer.

Mr. C. Brown: Is the right hon. gentleman aware that in this case men are being dismissed who have been employed there for as long as 20 years, that some of these men own their houses there, or are in course of buying houses, and cannot the Minister do something to avoid the evil social consequences that will arise from an action such as this?

Mr. E. Brown: The hon. member is placing on me a responsibility which does not belong to me. I have no power in this matter, but I will do everything that I can to facilitate new employment for these men.

Mr. Wedgwood Benn (Gorton—Lab.): Is the right hon. gentleman aware that these men have been working at this place for years, and are now asked to go to York, and cannot go? Could not the right hon. gentleman enter into consultation with other departments with the object of finding some work for these works, so that these men can be employed there?

Mr. Brown: I have already said that my department will make every effort to find suitable alternative employment for the workers displaced as a result of this transfer. There is sufficient alternative employment for them in York. The action of my department has reference to employment locally.

Mr. Benn: Could not the Minister consult with other departments so that possibly some contract could be given, or something of that kind done, so that the men could be retained at the works at Dukinfield?

Mr. Brown: The right hon. gentleman misunderstands the situation. The fact is that the L.N.E.R. is transferring the carriage and wagon building work previously undertaken at these works to York, leaving only a small amount of repair work to the Dukinfield works. The right hon. gentleman will see that his suggestion does not offer a solution.

Mr. Ellis Smith (Stoke—Lab.): Will the right hon. gentleman consult with the Secretary of State for Air on this matter, seeing that these men are skilled men who would be suitable for that type of work?

Mr. Brown: Of course, I had these implications in mind when I said that I would do all that I could.

Mr. Benn: Will the Minister meet some members from these constituencies in connection with the matter?

Mr. Brown: I am always glad to meet the local members.

G.W.R. Bridge to Be Reconstructed

Sir William Jenkins (Neath—Lab.), on July 26, asked the Minister of Transport if he would take steps to get the G.W.R. to proceed with the work of erecting the station footbridge over the railway, which was jointly owned by the Glyncorrwg Urban District Council and the Great Western Railway Company, which was a source of public danger and a great public inconvenience.

Captain Euan Wallace (Minister of Transport): I understand that the heads of the necessary agreement between the Urban District Council and the railway company for the reconstruction of the footbridge are now under discussion, and that the work will be put in hand as soon as possible.

Transport Between Glasgow and Innellan

Mr. Robert Gibson (Greenock—Lab.), on July 26, asked the Minister of Transport if he had considered the further representations on the lack of transport facilities between Glasgow and Innellan; and if he would make a statement on the subject.

Captain Euan Wallace: The L.M.S.R. informs me that, except on Saturdays, a train leaves Glasgow (Central) at 6.45 p.m. giving a connection with a steamer leaving Gourock at 7.40 p.m. and arriving at Innellan at 8.20 p.m. On Saturdays a train leaves Glasgow (Central) at 7 p.m. connecting with a steamer leaving Wemyss Bay at 8.10 p.m. and arriving at Innellan at 9.25 p.m. There is also an earlier train on all weekdays from Glasgow (Central) at 6.10 p.m., arriving at Gourock at 6.59 p.m. (6.56 p.m. on Saturdays) but without a connection to Innellan. I am still in communication with the company on the further points brought to my notice by Mr. Gibson, and I will let him know the result as soon as possible.

Downham Market Accident

Mr. S. A. Maxwell (Norfolk, King's Lynn—C.), on July 26, asked the Minister of Transport whether he was in a position to make any statements on the enquiry which he instituted on the recent railway accident near Downham Market.

Captain Euan Wallace: The report of the Chief Inspecting Officer who held the inquiry into this railway accident is not yet completed, and I am, therefore, not yet in a position to make any statement on the matter. In any case, criminal proceedings are being instituted against the lorry driver concerned in this accident, and until such proceedings are concluded it would not be proper for me to make public the findings of the Chief Inspecting Officer.

Mr. Maxwell: When these proceedings are over, will the Minister consider having a general inquiry into the whole question of level crossings, and, particularly, occupational crossings?

Captain Wallace: That is a very much wider question.

Surrender of Season and Period Rail Tickets

Mrs. Adamson (Dartford—Lab.), on July 26, asked the Minister of Transport whether he was aware that when young men surrendered their season and period rail tickets on account of being called up for military training, they had returned to them a less proportion of the amount originally paid; and if he would consult with the railway companies with a view to rectifying this grievance.

Captain Euan Wallace: I have consulted the railway companies on the question of allowances in respect of non-user of season tickets. They point out that the existing regulations under which they make these allowances are designed to put the season ticket holder, who surrenders his ticket, in at least as good a position as if he had taken out a ticket or tickets for the actual period of user.

Liverpool Lime Street Station

Mr. B. V. Kirby (Liverpool, Everton—Lab.), on July 26, asked the Minister of Transport if he would enquire when the L.M.S.R. proposed to improve the front of its property facing Lime Street, Liverpool, thereby making a long overdue improvement.

Captain Euan Wallace: The railway company informs me that it has under consideration various schemes for the development of the station site and frontage at Lime Street, Liverpool, but that no decision has yet been reached.

Parliamentary Notes

Railway Air Services

When the British Overseas Airways Bill was considered in Committee on July 25, Mr. O. E. Simmonds (Duddeston—C.) moved an amendment to delete the sub-section of Clause 4 (Approval of Secretary of State required to certain activities) enabling the corporation to hold the stock of and carry out existing arrangements with respect to the operation of Railway Air Services Limited. He said that the railway companies took power to themselves in 1929 to operate air services, but none of them exercised those powers until 1933, when the Great Western Railway began running air lines. Apparently they did not find their operation as easy as they expected, and in 1934, together with the Southern Railway, the London Midland

& Scottish Railway, and the London & North Eastern Railway, they asked Imperial Airways whether they would get them out of their responsibility of operating aircraft services, while at the same time retaining a clear interest in those services and not finding themselves in the position that they did in regard to road services, where they allowed vested interests in road transport to spring up and had to purchase those interests at a high figure. Therefore, in 1934 there was this arrangement between the four railway companies and Imperial Airways, whereby each of them had one-fifth of the shares in Railway Air Services, and Imperial Airways operated the services for Railway Air Services. It seemed to him that they were weakening the corporation when they allowed or encouraged it to continue what was virtually a footling part of its duties, operating a few odd services in this country for the railway companies. Why could not this personnel that today operated these services be passed over to the railway companies to be responsible to the railway companies and to the directors of Railway Air Services, who were, with the exception of the Imperial Airways representatives, directors of the railway companies themselves ?

Mr. G. Le M. Mander (East Wolverhampton—Lib.) said there might perhaps be something to be said on the question of how far the new corporation should be entrusted with the running of internal air services in this country, including the Railway Air Services, but they ought to be very careful before laying it down that they wanted their internal air services handed over to the railway companies. He did not think that in their handling of the work so far the railway companies had been at all happy. There were conflicting interests and it seemed to be highly desirable to try to isolate the new internal air services from railway control.

Mr. B. Bracken (North Paddington—C.) said that Mr. Mander seemed to have a permanent bias against railway companies. It was a very serious proposition to suggest that the railway companies, which had an enormous amount of capital invested in them, should not be allowed to go into the air transport business if they so desired. The railways of this country were, on the whole, excellently managed, and it would be very wrong of the House to put any sort of barrier against their going into the air transport business. There were in this country some 200,000 or 300,000 railway shareholders and about 600,000 employees, and the railways, having, so to speak, a charter to engage in air transport, ought not to be kept out of it by reason of the bias of Mr. Mander. Sometimes he felt this anti-railway bias to be like anti-Semitism or anti-Jesuitism. It was a great danger to the country. It was already doing harm to the transport interests of the country. It would be a great disaster if the railway companies were kept out of this new and enterprising form of transport.

Mr. W. R. D. Perkins (Stroud—C.) said there were now only three companies who were not under some form of control by the railway companies. Their quarrel with the railway companies was not that they were not trying to run aviation, but that they were not trying to run it whole heartedly. They were stepping in to get control and were slowly strangling it, just as they did with the canals.

Captain H. Balfour (Under-Secretary of State for Air) said that none of the arguments put before the committee had shown why Railway Air Services Limited should not be allowed, with the consent of all interested parties, to avail itself of the corporation's resources for operating air services. If the *status quo* were not allowed to continue, and Railway Air Services had to be thrown over by the corporation, there would be no guarantee that the railway companies who were not themselves experienced in air operations, but were willing to hire operational experience from the corporation, would continue such services. If the present agreement were cancelled, it might deal a very severe blow to internal aviation prospects in this country. He asked the committee to reject the amendment.

The amendment was by leave withdrawn, and the Clause was agreed to.

London Transport Bill.

The London Passenger Transport Bill, as amended, was read the third time and passed in the House of Lords on July 25, and returned to the Commons.

STAFF AND LABOUR MATTERS

Railway Shopmen—Tubers' Mates

The Industrial Court met in London on July 18 to consider the claim of the National Union of Railwaymen that men at Edge Hill locomotive depot, L.M.S.R., employed at the smokebox end of locomotives in connection with tubing work, who are graded as tubers' mates, should be regraded as tubers. The man concerned in the present reference is G. R. Grimes, who is employed as a tuber's mate, and the issue between the parties in the present case is whether the man is properly graded. The question of his rate of pay does not arise and had not been discussed by the parties. On the one hand the union contended that having regard to the nature of his duties he should be graded as a tuber. On the other hand the company contended that having regard to the nature of the work done by him in relation to that of the tuber under whom he is employed, he is properly graded as a tuber's mate. The grading of tubers and tubers' mates is provided for in Schedule D of Award No. 728 as follows:—

Tubers ..	36s. to 40s. a week, plus war wage or bonus.
Tubers' mates	30s. to 34s. a week, plus war wage or bonus.

No provision is made for the grading of tubers in relation to their employment at the smokebox end or the firebox end of the locomotive respectively, and in the absence of any such differentiation in the grading of tubers, the Industrial Court by Award 1737, states that having regard to the nature of the duties of the man concerned in relation to those of the tuber under whom he is employed, it is of the view (and so awards) that the claim has not been established.

Machinery of Negotiation—Railway Shopmen

The withdrawal of the National Union of Railwaymen from the Scheme of Negotiating Machinery for Railway Shopmen was confirmed at the annual general meeting of the union, when the following resolution was carried: " that this A.G.M. decides to adopt the scheme of machinery as decided by the National Shopmen's Conference, and instructs the General Secretary to approach the railway companies with a view to it being put into operation immediately on the termination of the present machinery." An amendment that the present machinery be operated until agreement has been reached between the union and the companies was defeated by 65 votes to 13.

HOLIDAYS IN BELGIUM.—We have received from the Belgian Railways & Marine three new folders, the first of which gives details of the cheap 17-day " holiday " tickets issued this year from London to Belgian stations *via* the Dover-Ostend route. In the second publication the advantages and reductions (in transport fares, entrance fees to places of interest, and so on) are catalogued, and the third folder gives some notes on the city of Bruges and the Pageant Play of the Precious Blood, to be held there at the beginning of August.

RAILWAYMEN AND MORAL REARMAMENT.—Some hundreds of railway employees were among those who joined in a message to the people of America from thousands of British towns, cities, and villages. The message was presented together with messages from famous statesmen, to 30,000 people at the opening meeting of the World Assembly for Moral Re-Armament in the Hollywood Bowl, California. From one railway company alone came a batch of sheets covered with the names of principal officers, clerks, typists, engineers, architects, draughtsmen, surveyors, laboratory assistants, stationmasters, porters, ticket collectors, signalmen, guards, drivers, permanent way men, and many other grades. Some sheets bore the signatures of the complete station staff, from stationmaster to junior porter. The message has been bound in 16 volumes.

NOTES AND NEWS

Paris Metro Extension.—The Metro line No. 10 (Auteuil-Jussieu) was extended to Orleans-Austerlitz on July 12.

Air Line Schedules.—This year will be the last time that the winter schedules of air line companies will come into force as early as October 8. In 1940, it is planned that summer services shall last from April 1 to October 31.

New L.M.S.R. Station Near Rugeley.—In order to serve an important developing area, the L.M.S.R. is to provide a new passenger station, to be known as Brindley Heath, adjacent to Moors Gorse level-crossing between Hednesford (Staffs) and Rugeley Town stations.

South Behar Railway Co. Ltd.—Notice is given in *The London Gazette* that the creditors of this company are required, on or before August 14, 1939, to send particulars of their debts and claims to Mr. Vaughan Craster, of 123, Victoria Street, S.W.1, the liquidator in the voluntary winding-up.

G.W.R. and L.M.S.R. Lines Blocked.—On July 19 a landslide, caused by heavy rain, blocked the Great Western line between Pontypridd and Trehafod. The fall covered three of the four lines; working was maintained for a time on the fourth. All lines were cleared by the next morning. At Teignmouth the line was flooded. Heavy rain in the Highlands caused a fall of rock on to the Dingwall to Kyle of Lochalsh line of the L.M.S.R. between Attadale and Strome Ferry stations on July 17. A goods train was derailed and westbound excursions from the Dingwall direction were turned back.

Farringdon Street Goods and the "Safe Driving" Competition.—The competition for safe driving entails every competitor entering his name before the beginning of the year, and if he is successful in escaping any accident for which he is in any way to blame, a diploma is awarded. Five years of continuous safe driving brings the award of a silver medal, and ten years of continuous safe driving a gold medal. The holders of medals receive a bar for every further year that they qualify for an award, oak leaf bars from 11 to 14 years, and special bars from 15 to 20 years. The Farringdon Street cartage staff, L.N.E.R., for the 1938 competition had :—

5 drivers holding gold medals qualified for special bars, 15 to 20 years.

11 drivers holding gold medals qualified for oak leaf bars, 11 to 14 years.

1 driver qualified for gold medal for 10 years.

7 drivers holding silver medals qualified for bars, 6 to 9 years.

3 drivers qualified for silver medals for 5 years.

13 drivers qualified for diplomas from 1 to 4 years.

As these drivers are working daily in the most congested parts of the City, these are notable achievements on their parts. The type of vehicle in present use is the 3-ton Scammell mechanical horse and trailer. The station cartage was entirely mechanised in 1933 with 60 of these useful machines.

Collision at York, L.N.E.R.—At about 3 a.m. on July 23, the 11.35 p.m. parcels express from King's Cross to Newcastle ran into the back of the 10.35 passenger express from King's Cross to Edinburgh, which was stationary at the south side of York station. The end coach of the stationary train was derailed and damaged. There were no serious casualties.

Dover, St. Margaret's & Martin Mill Light Railway.—Notice is given in *The London Gazette*, July 21, that the Dover, St. Margaret's & Martin Mill Light Railway Company is applying to the Ministry of Transport for extension of time for one year from October 11 next, for the completion of the works authorised by the Light Railway Order of 1901

A.R.P. Exhibition Train in France.—An Air Raid Precautions exhibition train which the S.N.F.C. had organised at the Gare de L'Est in Paris is now touring through France, stopping at 57 towns, including Troyes, Langres, Belfort, Colmar, Epinal, Wissembourg, Metz, Nancy, Toul, and Chateauthierry. The exhibition consists of two coaches, one converted into a cinema for showing propaganda films, and the other containing specimens of protective clothing, gas-masks, oilskins, uniforms, &c., for the voluntary life-saving, fire, and ambulance services. In fact, the exhibition demonstrates all the means of defence that everyone can use and obtain at very little cost. Among the many exhibits are : Cellophane film to strengthen window panes, and preserve food ; fireproof paint and whitewash ; and sandbags and methods of stacking them. In addition to these, the visitor may read instructions for treating the wounded, and for putting out fires.

Temporary Closing of Cannon Street Station, Southern Railway.—As we reported last week, a serious fire which broke out late on Wednesday, July 19, in a warehouse in Borough Market adjacent to the Southern Railway line between London Bridge and Cannon Street stations necessitated the suspension of train services. The two up roads over the viaduct into Cannon Street were affected, and the damage that was done necessitated repairs to the girder work and also to the decking. By 6 a.m. on Saturday, July 22, it was found possible to run a restricted service of steam and electric trains into Cannon Street over the up through road, and full normal services over both roads were resumed at 6 a.m. on Monday, July 24. In both cases the repaired viaduct was tested by running coupled locomotives of the heaviest type thereover before the ordinary traffic was put into operation. Fortunately no signal or electric cables were damaged. The viaduct carrying the down roads was not damaged, but these two lines could not, of course, be used without the up roads.

Anglo-Scottish Air Licences.—The Air Transport Licensing Authority has granted two interim one-year licences for Anglo-Scottish services. The first is to North Eastern Airways Limited, which applied to work between London and Aberdeen direct, or with intermediate landings at either Doncaster or Newcastle, and at Glasgow, Edinburgh, and Perth. The other is to Railway Air Services Limited, for working between London and Glasgow, with intermediate landings at Birmingham, Manchester, Liverpool, the Isle of Man, and Belfast.

New Compartment Colours on the G.W.R.—The Great Western Railway has just adopted a new standard colour scheme for the interior decoration of its carriages. In first class corridor compartments the colour scheme will be cream and brown ; and in third class corridor and non-corridor compartments cream and green. Curtains, blinds, carpets, and linoleum will match the patterned upholstery, and the woodwork will be in polished teak. All coaches built at Swindon in future will incorporate the new colour schemes, and a beginning has already been made with some of the coaches passing through the shops for repair.

Bomb Explosions at Two London Termini.—On July 26, bomb outrages took place at two London termini. The first occurred at King's Cross station, L.N.E.R., shortly after 2 p.m., when a bomb exploded in a cloakroom and killed one man ; the injured are stated to have numbered fifteen persons, six of whom were women and four cloakroom attendants. The explosion damaged the cloakroom extensively. The other outrage was at Victoria station, Southern Railway, where at 9.35 p.m. an explosion in the cloakroom adjoining No. 15 platform injured five men, three of whom were cloakroom attendants and two outside porters. The force of the explosion broke windows in part of a Hastings and Eastbourne train standing at platform 15 and damaged the clock in the circulating area.

G.W.R. Hotels and Catering Services.—A useful illustrated guide to all Great Western Railway hotel and catering facilities has been published by the company. Here the reader is given in convenient form the tariffs of G.W.R. hotels, illustrations of their general amenities, and particulars of local attractions. With its aid it is possible to plan an attractive "all Great Western" holiday, which could be embarked upon in the happy confidence that the same spirit of courteous and thoughtful service would be at the traveller's disposal from the moment of taking his seat in the railway carriage

until his return home. There is also an article on station refreshment rooms which will make instructive reading for any who have hitherto based their conception of what facilities such places provide upon a now discredited tradition. Some similarly informative pages deal with catering in restaurant cars and steamships. Numerous pictures illustrate the handbook, giving exterior and interior views of the company's hotels and their picturesque settings, and of refreshment rooms, platform refreshment trolleys, restaurant and buffet cars, and so on.

Art Studies of Channel Ports.—In co-operation with the firm of W. G. Briggs & Co. Ltd., pictorial postcard publisher, the Southern Railway has just issued a series of eight coloured postcards of the Channel Ports, from oil paintings by Leonard Richmond, R.O.I. The artist has avoided the obvious and material presentation of his subject, and produced rather the traditional atmosphere of each port in a colourful and charming way. The printing is a fine example of four-colour art work, and this series will undoubtedly be welcomed not only by collectors, but also as souvenirs by all travellers to and from the Continent. The subjects include St. Malo, Dover, Boulogne, Newhaven, Folkestone, Calais, Dieppe, and the Solent—Southampton; they are now on sale in packets of eight, price 1s., at principal bookstalls of the Southern Railway and at the ports concerned.

Dover-Ostend Handbook.—We have received from the Belgian Railways & Marine, 99, Regent Street, W.1, the summer, 1939, edition of this gratis timetable of Dover–Ostend sailings and their rail connections. The tables show services from London to Belgium, France, Germany, Italy, Switzerland, Scandinavia, Roumania, and Russia. A ten-page fares section gives bookings from London or Dover to the principal Continental centres. A folding railway map indicates the journey times from London *via* Dover–Ostend to the large Belgian towns.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 29th Week			Totals to Date		
	1939	1938	Inc. or Dec.	1939	1938	Inc. or Dec.
L.M.S.R. (6,828 mls.)	£	£	£	£	£	£
Passenger-train traffic...	680,000	776,000	– 96,000	14,053,000	14,353,000	– 300,000
Merchandise, &c. ...	483,000	397,000	+ 86,000	13,642,000	13,389,000	+ 253,000
Coal and coke ...	231,000	206,000	+ 25,000	7,772,000	7,427,000	+ 345,000
Goods-train traffic ...	714,000	603,000	+ 111,000	21,414,000	20,816,000	+ 598,000
Total receipts	1,394,000	1,379,000	+ 15,000	35,467,000	35,169,000	+ 298,000
L.N.E.R. (6,320 mls.)						
Passenger-train traffic...	464,000	480,000	– 16,000	9,127,000	9,232,000	– 105,000
Merchandise, &c. ...	323,000	270,000	+ 53,000	9,318,000	9,396,000	– 78,000
Coal and coke ...	218,000	195,000	+ 23,000	7,353,000	6,964,000	+ 389,000
Goods-train traffic ...	541,000	465,000	+ 76,000	16,671,000	16,360,000	+ 311,000
Total receipts	1,005,000	945,000	+ 60,000	25,798,000	25,592,000	+ 206,000
G.W.R. (3,737¾ mls.)						
Passenger-train traffic...	295,000	325,000	– 30,000	5,904,000	5,951,000	– 47,000
Merchandise, &c. ...	218,000	176,000	+ 42,000	5,819,000	5,454,000	+ 365,000
Coal and coke ...	110,000	107,000	+ 3,000	3,290,000	3,189,000	+ 101,000
Goods-train traffic ...	328,000	283,000	+ 45,000	9,109,000	8,643,000	+ 466,000
Total receipts	623,000	608,000	+ 15,000	15,013,000	14,594,000	+ 419,000
S.R. (2,142 mls.)						
Passenger-train traffic...	410,000	441,000	– 31,000	9,061,000	9,054,000	+ 7,000
Merchandise, &c. ...	66,000	59,500	+ 6,500	1,774,500	1,761,000	+ 13,500
Coal and coke ...	31,000	30,500	+ 500	930,500	892,000	+ 38,500
Goods-train traffic ...	97,000	90,000	+ 7,000	2,705,000	2,653,000	+ 52,000
Total receipts	507,000	531,000	– 24,000	11,766,000	11,707,000	+ 59,000
Liverpool Overhead ... (6½ mls.)	1,412	1,409	+ 3	40,467	39,390	+ 1,077
Mersey (4½ mls.) ...	4,434	4,484	– 50	129,174	126,036	+ 3,138
*London Passenger Transport Board ...	583,900	568,000	+ 15,900	1,776,200	1,704,100	+ 72,100
IRELAND						
Belfast & C.D. pass. (80 mls.)	5,246	5,087	+ 159	70,559	67,709	+ 2,850
,, ,, goods	503	461	+ 42	12,484	12,396	+ 88
,, ,, total	5,749	5,548	+ 201	83,043	80,105	+ 2,938
Great Northern pass. (543 mls.)	16,500	16,600	– 100	298,500	288,800	+ 9,700
,, ,, goods	10,250	9,550	+ 700	291,400	254,150	+ 37,250
,, ,, total	26,750	26,150	+ 600	589,900	542,950	+ 46,950
Great Southern pass. (2,076 mls.)	49,772	52,615	– 2,843	975,662	971,131	+ 4,531
,, ,, goods	41,142	38,122	+ 3,020	1,168,965	1,134,719	+ 34,246
,, ,, total	90,914	90,737	+ 177	2,144,627	2,105,850	+ 38,777

* 3rd Week (before pooling)

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices July 26, 1939	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	65¼	25¾	34	+½
5% Con. Prefce....	118¾	74	90½	—
5% Red.Pref.(1950)	111¾	90	96½	—
4% Deb.	111	97½	97½	—
4½% Deb.... ...	112 5/16	100½	100	—
4½% Deb.... ...	118½	104	105	—
5% Deb.	131½	119	114½	+2
2½% Deb.... ...	69¾	60	59	—
5% Rt. Charge ...	129	114	110½	+1
5% Cons. Guar. ...	128½	103	107½	+1
L.M.S.R.				
Ord.	30½	11	14¾	+¼
4% Prefce. (1923)	70¼	23	44	+1
4% Prefce. ...	82¼	43¾	62	+½
5% Red. Pref.(1955)	103½	66	79½	+3
4% Deb.	105 15/16	85	91½	+½
5% Red.Deb.(1952)	114¼	105	107	—
4% Guar. ...	102¾	77½	84½	+1
L.N.E.R.				
5% Pref. Ord. ...	8 9/16	3½	4⅝	+⅛
Def. Ord.	4 7/16	2 1/16	3	+¼
4% First Prefce.	68¼	21	35	+½
4% Second Prefce.	27¼	8	13	+½
5% Red.Pref.(1955)	97	40¼	50½	+1
4% First Guar. ...	97½	66¼	73⅛	—
4% Second Guar.	91¼	52	66½	+1
3% Deb.	79¼	60	63½	—
4% Deb.	104⅛	77	84½	—
5% Red.Deb.(1947)	110⅝	97	103½	—
4½% Sinking Fund Red. Deb.	108 11/16	101	98	—
SOUTHERN				
Pref. Ord. ...	87	47	70	–½
Def. Ord. ...	21¾	9	15½	—
5% Pref.	115	83	96½	—
5% Red.Pref.(1964)	115½	98	99½	—
5% Guar. Prefce.	128½	106	110	—
5% Red.Guar.Pref. (1957)	116	108½	108½	—
4% Deb.	109¼	95	97½	—
5% Deb.	129	117	114	—
4% Red. Deb. 1962–67	107	101½	102½	—
BELFAST & C.D.				
Ord.	4	3½	4	—
FORTH BRIDGE				
4% Deb.	102	99⅛	92½	—
4% Guar. ...	103¼	94½	89	—
G. NORTHERN (IRELAND)				
Ord.	5½	2½	4	+½
G. SOUTHERN (IRELAND)				
Ord.	25½	8½	10	—
Prefce.	35	13	12¼	—
Guar.	70¼	30 15/32	27	–4
Deb.	83	56	51	—
L.P.T.B.				
4½% "A" ...	119⅝	107½	107½	—
5% "A" ...	130	117	114⅛	—
4½% "T.F.A." ...	108	98	102½	—
5% "B" ...	122 13/16	105	108½	–1
"C"	84	68	73½	—
MERSEY				
Ord.	24¼	16½	22	—
4% Perp. Deb. ...	102⅞	94¾	90*	—
3% Perp. Deb. ...	77	69	65½*	—
3% Perp. Prefce.	66½	57	52½	—

* ex dividend

CONTRACTS AND TENDERS

Breakdown Crane for India

Cowans Sheldon & Co. Ltd. has received an order from the Bombay, Baroda & Central India Railway for one metre-gauge 30-ton steam breakdown crane with relieving bogies and match truck, to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Boilers for India

The Vulcan Foundry Co. Ltd. has received an order from the Bombay, Baroda & Central India Railway Administration for six superheated "G" class locomotive boilers.

W. G. Bagnall Limited has received an order from the Controller of Stores, North Western Railway of India, for two saturated locomotive boilers for "G" class, 2-8-2 locomotives at a total price of Rs. 19,650, c.i.f. Karachi.

Rolling-stock for Rhodesia

Metropolitan-Cammell Carriage & Wagon Co. Ltd. has received an order from the Rhodesia Railways for three enginemens' cabooses with steel underframes and all-steel bodies for service on the Southern Section and to be supplied to the inspection of Messrs. Freeman, Fox & Partners.

Craig & Donald Limited has received an order from the Rhodesian Railways for one combined punching, bar cropping, and plate shearing machine, type 125, for Umtali Workshops, and to be supplied to the inspection of Messrs Freeman, Fox & Partners.

The Permutit Co. Ltd. has received an order from the Antofagasta (Chili) & Bolivia Railway for two Zerolit semi-automatic base exchange water-softening plants.

Burn & Co. Ltd. has received an order from the Chief Controller of Stores, Indian Stores Department, for 15 steel crank axles at a total price of Rs. 32,186, c.i.f. Karachi.

Howell & Co. Ltd. has received an order from the Argentine North Eastern Railway for 700 solid drawn steel boiler tubes.

Bochumer Verein A.G. has received an order from the Egyptian State Railways Administration for springs and tyres (Order No. 21.1031, items 2 and 3, total price £317 2s., f.o.b. Amsterdam, Rotterdam, Antwerp).

The French National Railways Company has ordered 416,000 tons of Welsh coal for delivery over the next six months. Of the total, the Powell Duffryn and Tredegar companies have each received orders for 133,000 tons.

Geo. Turton Platts & Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for 500 steel spiral bogie bearing springs for wagons.

Robert W. Hunt Co. Inc. is to be responsible for the inspection, on behalf of the Turkish State Railways Administration, of the 300 pairs of steel hopper wagons, which, as recorded in our issue of June 23, page 1047, are on order from British firms for that system.

New Steamers for L.M.S.R.

The Fairfield Shipbuilding & Engineering Co. Ltd. has received an order from the L.M.S.R. for two fast twin-screw, turbine steamers for the Holyhead-Kingstown (Dun Laoghaire) service. These new steamers, which it is expected will be placed on the service in 1941, will be driven by single-reduction geared turbines. They will have a length of 390 ft. between perpendiculars, and a beam of 54 ft., and will be capable of carrying 2,000 passengers each—750 first class, and 1,250 third class. The passenger accommodation throughout will be of a luxurious type with suitable provision for both day and night travel.

Usines & Acieries Allard has received an order from the Egyptian State Railways Administration for axleboxes (Ref. No. ESR 321G8/8-27, total price £1,096 16s. 8d., f.o.b. Antwerp).

Associated Locomotive Equipment Limited has received an order from the Bengal-Nagpur Railway Administration for cylinders for "N" class locomotives.

Banting & Tresilian Limited has received an order from the Bengal-Nagpur Railway Administration for 32 copper firebox plates.

Roumania, Bulgaria, and Jugoslavia are reported to have placed orders for railway rolling stock in Italy to the value of 150,000,000 lire, 200,000,000 lire, and 100,000,000 lire, respectively, states a Reuters message from Rome.

The Exors. of James Mills Limited has received orders from the Chief Controller of Stores, Indian Stores Department, Simla, for 100,000 steel rail keys, Macbeth type.

Tenders are invited by the Lithuanian State Railways, through the Lithuanian Ministry of Communications, and receivable by August 10, at the Lithuanian Legation, 19, Kensington Palace Gardens, London, W.8, for the supply of 65,000 tons of locomotive coal.

Tenders are invited by the Stores Purchase Committee, Government of Mysore, Bangalore, for the supply of 50 four-wheeled metre-gauge covered goods wagons, seven four-wheeled metre-gauge ballast wagons, and six metre-gauge bogie carriage underframes. Tenders are due at the office of the Secretary, Stores Purchase Committee, Government of Mysore, Bangalore, by August 31, and specifications and drawings are obtainable from Messrs. Rendel, Palmer & Tritton, 55, Broadway, Westminster, London, S.W.1.

STEWARTS AND LLOYDS—STANTON MERGER.—The terms of the proposed merger between Stewarts and Lloyds Limited and the Stanton Ironworks Co. Ltd. which have recently been announced are that holders of Stanton preference stocks will receive an equivalent amount in Stewarts and Lloyds preferences. For each £1 unit of ordinary stock Stanton holders are offered one £1 deferred stock unit in Stewarts and Lloyds valued in the market at 44s. 6d., together with a further 12s. 6d. to be paid partly in 5 per cent. third preference stocks of Stewarts and Lloyds (taken at 22s. a unit) and partly in cash.

Inaugural Run of Accelerated Cork Mail Services, G.S.R. (I.)

To inaugurate the accelerated mail train services between Dublin and Cork and *vice versa*, previously described in the Overseas columns of our issue of June 9, a party of officials and press representatives on July 17 travelled by the 7.15 a.m. train from Dublin to Cork and returned on the 4.5 p.m. from Cork. It will be remembered that the down train has been accelerated by 22 min. and the up by 15 min., and in this connection attention is directed to an editorial note entitled "Speed and Locomotive power" on page 123 in this issue.

On the inaugural runs the locomotive, No. 800 *Maedhbh* (*Maeve*), easily improved on the schedules and also upon the timing previously in force for the down journey by 30 min. It was clear from the early arrivals at intermediate stations that still further improvement in the timing could be effected if desired; the maximum speed attained was 92 m.p.h. The coal consumption and steaming of the engine are reported as entirely satisfactory.

Officials travelling by the train included: Messrs. P. J. Floyd, Traffic Manager; E. C. Bredin, Chief Mechanical Engineer (who is responsible for the new engine); M. J. Ginnety, Running Superintendent; H. J. O'Hara, Outdoor Assistant to the Traffic Manager, and J. Doyle, Hotels Manager.

The introduction of the "800" class has, as stated in the editorial note, the further advantage of eliminating piloting and also the rear banking out of Kingsbridge, Dublin. The accelerated schedules of these mail trains are to remain in force during the winter months.

Incidentally, it may be of interest to note that *Maedhbh* is the name of one of the ancient Irish queens, after whom the "800" class is being named. In addition to the detailed description and illustrations of them, published on pages 617-19 in our issue of April 14 last, the following information is now available. They are painted green with black and yellow lining and bronze name and number plates having a blue background, and are said to have been designed to haul 500-ton trains at 60 m.p.h., presumably on the level.

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post:—SIGNAL AND TELEGRAPH ENGINEER required for the Federated Malay States Government Railway for 3 years, with possible permanency. Salary $400 a month, rising to $800 a month by annual increments of $25 a month. (The Government rate of exchange is now 2s. 4d. to the dollar.) A children's allowance is payable to married officers with children. Free passages and, subject to certain conditions, also for wife and family not exceeding four persons. Liberal leave on full salary. Candidates, age 25-35, must have been trained as Assistant Signal and Telegraph Engineer and be Associate or Student Members of the Institution of Electrical Engineers. They must have had at least 5 years' experience in the Signal and Telegraph Department of a British or Colonial Railway and possess a thorough knowledge of all electrical railway signalling instruments, mechanical signalling and interlocking of double and single line stations and junctions, track circuiting, train control telephone apparatus, automatic telephony, and underground cables. A knowledge of radio telegraphy and telephony would be an advantage.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/8650.

THE Proprietors of British Patent No. 448,681, relating to Improvements in or relating to Journal Bearings, are desirous of entering into negotiations with one or more firms in Great Britain for the purpose of exploiting the above invention, either by the sale of the patent rights or by the grant of a Licence or Licences to manufacture on royalty. Enquiries should be addressed to: ABEL & IMRAY, 30, Southampton Buildings, London, W.C.2.

RAILWAY SIGNALLING.—Draughtsman, with sound knowledge of Mechanical Interlocking, required by large Railway Company in the North, age 25-30. Apply stating full particulars of experience and training to: Box 257, c/o THE RAILWAY GAZETTE, 33, Tothill Street, S.W.1.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

RAILWAY AND OTHER REPORTS

London Midland & Scottish Railway Company.—For the first half of 1939, compared with that of the previous year, the company's results were: increase in receipts, £25,000; decrease in expenditure, £612,000. The net increase is £637,000. The directors have decided to repeat last year's interim dividends and accordingly the following payments will be made on August 24. £2 per cent. on the 4 per cent. guaranteed and 4 per cent. preference stock. No interim payment will be made on the 4 per cent. preference stock (1923).

International Railways of Central America.—A dividend has been declared of $1·25 a share on the 5 per cent. cumulative preferred stock. Payment is to be made on August 15. After this payment, arrears will amount to $25·50 a share. No dividend has yet been paid on the common stock.

Chinese Imperial Railway 5 per cent. Gold Loan of 1899.—Coupons and drawn bonds due August 1 next on this loan will be paid by the Hongkong & Shanghai Banking Corporation on and after that date at 9, Gracechurch Street, E.C.3, and must be left 3 clear days (excluding Saturdays) for examination previous to payment.

Trans-Zambesia Railway Co. Ltd.—Coupon No. 12, representing interest for the six months to August 1, 1939, will be paid on and after August 1, by Erlangers Limited, 4, Moorgate Street, E.C.2. Coupons must be presented between the hours of 11 a.m. and 2 p.m. (Saturdays excepted), and must be left three clear days for examination.

Snowdon Mountain Railway Limited.—The accounts for the year ended December 31, 1938, show the balance of the profit and loss account at £6,470. After deducting debenture interest amounting to £1,722, and £500 which is proposed to add to the reserve for renewal of locomotives, there is left a net profit of £4,248, to which there falls to be added the sum of £6,962, giving a grand total of £11,210. From this the directors recommend that a dividend of 5 per cent. for the year be paid, which will absorb £3,500 gross, leaving £7,710 to be carried forward.

Northern Ireland Road Transport Board.—It is announced by the board that a notable improvement in its trading results has taken place for the nine months ended June 30. Approximate figures as at that date disclose a total increase of £37,259 over the corresponding period of 1938. The figure is made up of £19,171 in respect of the passenger section, and £18,088 on the freight side. Passenger receipts have increased by £9,561, while costs are down by £9,610. Freight receipts are up even more, the figure being £9,606 and costs show a drop of £8,482. In the annual report for the period ended September 30 last, Mr. D. L. Clarke, Chairman of the board, referred to the necessity of procuring increased freight traffic, and the position since then has improved greatly. The report of a Select Committee of both Houses of Parliament in Northern Ireland on the transport situation will be issued shortly and will contain a number of important recommendations to which the Government will give immediate consideration.

Anglo-Argentine Tramways Co. Ltd.—As the Buenos Aires Transport Corporation did not take over until February 16, 1939, the assets and services of this company, the accounts cover the affairs of the company and its subsidiary companies as actual operating entities for the full 12 months to December 31, 1938. These show a net deficit of £141,901, against £168,445, which raises the accumulated deficit to £722,077. From this there has been deducted the balance on exchange adjustment account, £540,910. The nominal value of the shares receivable by the company for its transport interests, when converted into sterling at current rates of exchange, is substantially less than the book value of the assets handed over to the corporation, less liabilities cancelled. It is estimated that there will be available in reduction of this deficiency that part of the debenture stocks redemption account and contingency reserve not required for contingencies after writing off the adverse net revenue balance. The directors are not able to forecast the prospects of the company, which are dependent on the operations of the new corporation.

W. T. Henley's Telegraph Works Limited.—An interim dividend of 5 per cent., less tax, will be paid on September 30.

SYMBOLS FOR WELDING AND CUTTING.—The British Standard Nomenclature, Definitions and Symbols for Welding and Cutting (B.S. 499) was first issued in 1933, under the authority of the Mechanical Industry Committee, and a revision has just been published by the British Standards Institution. Copies can be obtained from the British Standards Institution, 28, Victoria Street, S.W.1, price 2s. (2s. 2d. post free).

NEW ZEALAND RAILWAY POSTERS.—A series of handsome pictorial posters has been issued by the New Zealand Government Railways to advertise certain service excursions by train, road, and water transport. The Wanganui River excursion is advertised by a study of a canoe in a winding river, hemmed in by wooded hills, with sketches of a train and a launch at the foot of the poster to indicate how the trip is carried out. A rail-and-road outing to Fordland carries, in addition to its main theme of mountain and river scenery, a semi-broadside of a five-coach train headed by a locomotive of impressive size. Other road-and-rail excursions are run to Lake Wanaka and to Queenstown, both of which are the subjects of panoramic views boldly coloured. Mount Egmont—the objective of an all-rail scenic excursion—is similarly treated on broad pictorial lines. This very arresting poster series reflects much credit upon the railway administration's own studios responsible for the design.

XUM

Railway Share Market

Firmer conditions have prevailed in most sections of the Stock Exchange, encouraged by hopeful views regarding the latest developments in international affairs. There was, however, very little improvement in the volume of business, and sentiment failed to reflect favourable news from trade centres and the expectations that the next return will show a further substantial decline in the number of the unemployed.

Home railway securities, which became easier in advance of the interim statements, were affected by disappointment with the past week's traffics, the aggregate increase of £66,000 being below general market estimates. Great Western ordinary stock was relatively steady around 34, aided by the view, current in some quarters of the market, that a dividend of 3 per cent. may be in prospect for the current year. The 5 per cent. preference was 91½ and the 4 per cent. debentures 98. L.M.S.R. ordinary was around 14½, and a fair amount of attention continued to be given to the 1923 preference and 4 per cent. preference stocks, which were 44½ and 62½ respectively, while the 4 per cent. guaranteed improved to 84. The last-named stock would appear to be rather moderately priced, bearing in mind its investment merits. The market is not anticipating that it will be possible for L.M.S.R. ordinary stock to return to the dividend list in respect of the current year, but there are continued hopes that, if traffics remain on the up-grade, there will be a reasonable chance of the 1923 preference stock receiving its full dividend. Granted markets show a strong revival, this stock would probably offer good scope for capital appreciation. L.N.E.R. first and second guaranteed received some attention around 73 and 66 respectively. The first preference was 35½ and the second preference 12¾, sentiment being influenced by satisfaction with the traffic figures for the past week, which made a better showing than those of the other main-line railways. The 4 per cent. debentures were 84½ and the 3 per cent. debentures 63, and debenture stocks generally were reported to be firmer in sympathy with the tendency in British Government securities. Southern stocks became easier on the traffic decline of £24,000 for the past week, but subsequently the preferred had a steadier appearance around 70, although the deferred was easier at 15½. The 5 per cent. preference was quoted at 96½. The disposition at the moment is to take a somewhat less encouraging view of the outlook for the Southern because of the fear that continued uncertainty as to political affairs may have a restrictive influence on passenger receipts. Nevertheless, there is general confidence that the full 5 per cent. dividend on the preferred stock will be covered by a satisfactory margin. London Transport " C " was dull around 73⅜.

The foreign railway market was again inactive, and in many instances it would appear that prices were not adequately tested by business, despite more hopeful views as to the traffic outlook of the leading Argentine railways. B.A. Western 4 per cent. debentures were fractionally lower at 42½, as were Central Argentine 5 per cent. debentures at 52½. San Paulo ordinary stock was lowered to 22. American railway securities were better on balance. Canadian Pacific common shares were 4⅝ and the preference stock 25½.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1938-39	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1938	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1938	Prices: Lowest 1938	Prices: July 26, 1939	Yield (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	23.7.39	12,320	+ 620	29	380,660	462,250	− 81,590	Ord. Stk.	14	7¼	6	Nil
	Argentine North Eastern	753	22.7.39	10,943	− 1,352	4	35,242	38,443	− 3,201	,,	6½	2	3½	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	82	75	62½	6⅝
	Bolivar	174	June 1939	4,650	+ 1,100	26	24,950	22,600	+ 2,350	6 p.c. Deb.	8	7	7	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	10	4	6	8⅝
	Buenos Ayres & Pacific	2,801	22.7.39	74,628	+ 124	4	249,566	240,261	+ 9,305	Ord. Stk.	6½	3¼	3½	Nil
	Buenos Ayres Central	190	15.7.39	$142,200	+ $29,200	3	$275,200	$293,700	− $18,500	Mt. Deb.	15½	8	11	Nil
	Buenos Ayres Gt. Southern	5,082	22.7.39	109,615	− 11,353	4	374,814	408,685	− 33,871	Ord. Stk.	17⅝	8½	7½	Nil
	Buenos Ayres Western	1,930	22.7.39	43,921	+ 6,390	4	135,423	126,860	+ 8,563	,,	12¾	5	6	Nil
	Central Argentine	3,700	22.7.39	132,826	+ 31,253	4	426,889	345,205	+ 81,684	,,	13¼	5¾	6½	Nil
	Do	—	—	—	—	—	—	—	—	Dfd.	6	2½	3	Nil
	Cent. Uruguay of M. Video	972	15.7.39	17,742	+ 978	3	37,324	39,045	− 1,721	Ord. Stk.	3	1¼	1	Nil
	Costa Rica	188	May 1939	24,302	+ 2,198	48	245,516	283,030	− 37,514	Stk.	28	22½	22½§	8⅞
	Dorada	70	June 1939	13,800	− 2,700	26	80,600	95,700	− 15,100	1 Mt. Db.	105¼	104	102½	5⅞
	Entre Rios	810	22.7.39	16,985	+ 1,067	4	56,848	50,948	+ 5,900	Ord. Stk.	7¼	3½	4	Nil
	Great Western of Brazil	1,092	22.7.39	4,400	− 100	29	245,400	197,400	+ 48,000	Ord. Sh.	3/-	1/-	¼	Nil
	International of Cl. Amer.	794	May 1939	$516,275	− $11,817	21	$2,800,928	$2,584,878	+ $216,050	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	6d.	6d.	½	Nil
	La Guaira & Caracas	22¾	June 1939	6,790	+ 2,190	26	35,430	30,235	+ 5,195	Stk.	8	6½	7½	Nil
	Leopoldina	1,918	22.7.39	21,599	+ 108	29	555,150	543,021	+ 12,129	Ord. Stk.	4	1	1	Nil
	Mexican	483	21.7.39	$255,600	− $5,400	3	$778,000	$835,500	− $57,500	,,	¼	1/16	⅛	Nil
	Midland of Uruguay	319	June 1939	6,839	− 594	52	103,758	111,938	− 8,180	,,	7/8	½	½	Nil
	Nitrate	386	15.7.39	4,688	+ 225	28	65,564	85,296	− 19,732	Ord. Sh.	52/9	19/16	1¾	7⅛
	Paraguay Central	274	15.7.39	$4,023,000	+ $622,000	3	$8,072,000	$7,592,000	+ $480,000	Pr. Li. Stk.	60	55½	40½	14⅛
	Peruvian Corporation	1,059	June 1939	59,567	− 7,164	52	785,648	946,133	− 160,485	Pref.	5⅜	1¾	1	Nil
	Salvador	100	15.7.39	¢11,650	− ¢150	3	¢23,782	¢25,817	− ¢2,035	Pr. Li. Db.	23	20	19½	Nil
	San Paulo	153½	16.7.39	32,667	− 3,392	28	882,479	927,142	− 44,663	Ord. Stk.	64	28	23	8⅛
	Taltal	160	June 1939	2,455	+ 160	52	33,700	39,100	− 5,400	Ord. Sh.	15/16	1/-	½	10
	United of Havana	1,353	22.7.39	15,643	− 1,533	4	51,301	51,078	+ 223	Ord. Stk.	3⅝	½	1	Nil
	Uruguay Northern	73	June 1939	694	− 207	52	11,341	11,259	+ 82	Deb. Stk.	2	1	2	Nil
Canada	Canadian National	23,762	21.7.39	707,377	+ 48,136	29	19,604,757	18,440,669	+ 1,164,088	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	72	60	68½	5¹⁵/₁₆
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104	90	96½	4⅛
	Canadian Pacific	17,171	21.7.39	539,200	+ 35,400	29	13,877,400	13,725,600	+ 151,800	Ord. Stk.	8⅞	4¼	4½	Nil
India†	Assam Bengal	1,329	30.6.39	38,775	− 2,374	13	349,413	343,195	+ 6,218	Ord. Stk.	81½	70	71½	4⅝
	Barsi Light	202	10.7.39	2,310*	− 12,090	14	36,247	49,140	− 12,892	Ord. Sh.	60½	54¼	50½	5¹⁵/₁₆
	Bengal & North Western	2,112	10.7.39	63,669	− 8,452	14	784,983	870,069	− 85,086	Ord. Stk.	311	278	254	7/16
	Bengal Dooars & Extension	161	10.7.39	3,219	− 24	14	30,321	35,825	− 5,504	,,	89	83	91½	7⅛
	Bengal-Nagpur	3,267	10.7.39	183,825	+ 12,581	14	2,223,077	2,054,107	+ 168,969	,,	95½	90	90½	4⅞
	Bombay, Baroda & Cl. India	3,085	20.7.39	199,725	+ 10,650	16	2,708,025	2,768,025	− 60,000	,,	112⅞	95	105½	5¹¹/₁₆
	Madras & Southern Mahratta	2,967	10.7.39	146,775	− 3,487	14	1,750,809	1,666,536	+ 84,273	,,	108	97	102½	7⅝
	Rohilkund & Kumaon	571	10.7.39	13,051	− 1,375	14	161,434	179,346	− 17,911	,,	308	285	262	6⅞
	South Indian	2,531¾	30.6.39	116,421	+ 5,587	14	1,063,425	1,070,711	− 7,286	,,	104	101	96½	5⅝
Various	Beira-Umtali	204	May 1939	88,259	—	35	636,331	—	—	—	—	—	—	—
	Egyptian Delta	623	30.6.39	4,838	+ 194	13	44,772	44,956	− 184	Prf. Sh.	7/8	5/6	½	Nil
	Kenya & Uganda	1,625	May 1939	206,557	− 11,295	21	1,220,870	1,309,332	− 88,462	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	49	41	41	8⅝
	Midland of W. Australia	277	May 1939	14,100	− 2,469	48	165,763	164,159	+ 1,604	Inc. Deb.	93¾	89	89	4½
	Nigerian	1,900	10.6.39	23,611	− 9,276	11	299,153	323,123	− 23,970	—	—	—	—	—
	Rhodesia	2,442¾	May 1939	365,832	—	35	2,880,230	—	—	—	—	—	—	—
	South Africa	13,284	15.7.39	632,452	+ 1,085	16	9,766,107	9,229,931	+ 536 176	—	—	—	—	—
	Victoria	4,774	April 1939	796,751	− 81,321	43	7,865,959	8,228,216	− 362,257	—	—	—	—	—

NOTE. Yields are based on the approximate current prices and are within a fraction of 1/16

* Ashadi Fair. † Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being over estimated. The statements are based on the current rates of exchange and not on the par value